

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, DC 20554**

In the Matter of	)	
	)	
Cost Review Proceeding for Residential and	)	
Single-Line Business Subscriber Line Charge	)	
(SLC) Caps	)	
	)	
Access Charge Reform	)	CC Docket No. 96-262
	)	
Price Cap Performance Review for Local	)	CC Docket No. 94-1
Exchange Carriers	)	
	)	
Federal-State Joint Board on Universal	)	CC Docket No. 96-45
Service	)	

**COMMENTS OF THE NATIONAL ASSOCIATION OF  
STATE UTILITY CONSUMER ADVOCATES (NASUCA)**

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\*\*This is proprietary information being provided only to the FCC as six tables -- one table per scenario as described in Section 5.3

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**LIST OF ACRONYMS**

AARP	American Association of Retired Persons
ACCC	Australia Competition and Consumer Commission
ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
BFP	Base Factor Portion
BLC	Broadband Loop Carrier
BOC	Bell Operating Company
CALLS	Coalition for Affordable Local and Long Distance Service
CAM	Cost Allocation Manual
CAM	Customer Access Module
CA PUC	California Public Utilities Commission
CCL-MOU	Carrier Common Line Minutes of Use
CLEC	Competitive Local Exchange Carrier
CMT	Common Line, Marketing, and Transport Interconnection Charge
C-MUX	Customer Multiplexer
CSA	Carrier Serving Area
CT DPUC	Connecticut Department of Public Utility Control
DEM	Dial Equipment Minutes
DLC	Digital Line or Loop Carrier
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexers
FCC	Federal Communications Commission
FERC	Federal Energy Regulatory Commission
GAAP	Generally Accepted Accounting Practices
HCPM	Hybrid Cost Proxy Model
HFPL	High-Frequency Portion of the Loop
HUNE	High-Frequency Unbundled Network Element
IDC	International Data Corporation
IDLC	Integrated Digital Loop Carrier
IEEE	Institute of Electrical and Electronics Engineers
ILEC	Incumbent Local Exchange Carrier
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISSLS	International Symposium on Services and Local Access
IXC	Interexchange Carrier
KHz	Kilohertz
LAS	Local Access Switches
LEC	Local Exchange Carrier
LRIC	Long Run Incremental Cost
MBPS	Megabytes per Second
MHz	Megahertz
MNPUC	Minnesota Public Utility Commission
NASUCA	National Association of State Utility Consumer Advocates
NECA	National Exchange Carrier Association

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NETT	New England Telephone and Telegraph Company
NGDLC	Next Generation Digital Line Carrier
NGN	Next Generation Network
NID	Network Interface Device
NPRM	Notice of Proposed Rule Making
NYSDPS	New York State Department of Public Service
OFTEL	Office of Telecommunications (United Kingdom)
OSS	Operation Support Systems
PCS	Personal Communication Services
PICC	Presubscribed Interexchange Carrier Charge
POTS	Plain Old Telephone Service
PSD	Power Spectral Density
PSTN	Public Switched Telephone Network
RAM	Remote-Access Multiplexer
RAO	Responsible Accounting Officer
RBOC	Regional Bell Operating Company
RegTP	Regulatory Authority for Telecommunications and Posts (Germany)
RRD	Revised Resistance Design
RSS	Remote Switching Stage
RSU	Remote Switching Unit
SBC	Southwestern Bell Corporation
SEC	Securities Exchange Commission
SLC	Subscriber Line Charge
SNET	Southern New England Telephone
SONET	Synchronous Optimal Network
TELRIC	Total Element Long-Run Incremental Cost
TIC	Transport Interconnection Charge
TSLRIC	Total Service Long-Run Incremental Cost
UDLC	Universal Digital Loop Carrier
ULLS	Unconditioned Local Loop Services
UNE	Unbundled Network Element
USF	Universal Service Fund
USTA	United States Telephone Association
VDI	Video Dialtone
xDSL	Digital Services Line (Symmetric or Asymmetric)



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## 1 EXECUTIVE SUMMARY

The purpose of this proceeding is to review economic cost data to see if the current Subscriber Line Charge (SLC) of \$5.00 should be increased. Undertaking this review is consistent with the Commission's commitment to set prices based on the economic cost of service. The National Association of State Utility Consumer Advocates (NASUCA) commends the Commission for undertaking the review. We believe that consumers in the United States should benefit from the same pricing standard established by the Commission for interconnection and unbundled network elements -- total element long-run incremental cost (TELRIC). In our filing we show that there is no economic basis for an increase in the Subscriber Line Charge.

The SLC is a flat charge that was originally designed to recover the interstate portion of local loop costs from an end user. It is now responsible for the recovery of the allowed common line, marketing and transport interconnection charge (CMT) revenue. The SLC is subject to a cap that, particularly for residential customers, is often below the level that would enable the Local Exchange Carrier (LEC) to recover the entire interstate CMT revenue. The Coalition for Affordable Local and Long Distance Service (CALLS) plan revised the system of common line charges by combining existing carrier and subscriber charges into one flat-rated SLC, added marketing and transport interconnection charge revenue recovery responsibility to residential and single-line business customers, and providing for limited deaveraging of those charges under specific conditions.

According to the Federal Communications Commission (FCC), by reforming the common line rate structure, the SLC promotes competition and preserves Universal Service. In addition, the FCC argues that controlled and capped increases in residential SLCs promote competition and ensure that rate levels remain affordable, while SLC deaveraging benefits consumers and preserve universal service. NASUCA, however, disagrees that this has been the result of the SLC under CALLS.

NASUCA demonstrates that average forward-looking SLC costs are below \$5.00, that a comparison of the cost studies with comparable UNE rates shows that the cost estimates provided by the Incumbent Local Exchange Carriers (ILECs) are grossly overstated, and that the current \$5 Subscriber Line Charge already covers costs. This demonstration is based on an analysis of the FCC Synthesis Model and state commission approved TELRIC rates. The FCC Synthesis Model calculates the forward-looking cost of universal service, and the unbundled network element rates are approved by the state commissions under FCC rules that mandate rates be based on forward-looking costs. Due to different input assumptions and modeling techniques, the TELRIC rates do not always match the Synthesis Model results.

The basic and fundamental result is that forward-looking costs are significantly below CMT revenues as consistently demonstrated by the Synthesis Model and the TELRIC rates. The implication of this fundamental result is, first, that current rates are high enough to recover the warranted forward-looking costs. Second, residential and single-

line business customers are currently paying implicit subsidies to the carriers and thus, supporting the carriers' other customers and stockholders. Third, increasing the residential and single-line business SLC cap will increase the implicit subsidies paid by these customers. Finally, in those rural high cost zones, where the SLC does not cover the forward-looking cost, it is reasonable to recover these costs from the Universal Service Fund.

NASUCA also demonstrates that the FCC must examine the allocation of cost between voice grade services and non-voice grade advanced services. The public switched network is being reconstructed to provide these advanced services. Many states have started to assign costs to these services. It is time for the FCC to revise its rules such that they are in accordance with a modern, multi-service platform. The loop can no longer be regarded as a twisted pair of copper dedicated to an end-user and built for the sole purpose of providing voice grade communications.

NASUCA is opposed to increasing the Subscriber Line Charge for the following reasons:

- ◆ The Cost Studies Filed by the ILECS in This Proceeding Do not Justify an Increase in the Subscriber Line Charge Cap (See Section 3);
- ◆ The FCC Must not Allow the CALLS-Proposed SLC Increases to Continue Based upon Studies for which other Parties have been Denied a Meaningful Opportunity to Review (See Section 3.1);
- ◆ The Cost Models Used for this Proceeding and Determining Increases in the Subscriber Line Charge Cap Should be Based on Forward-Looking Economic Costs, and not Embedded Cost Methodologies as Proposed by the ILECs (See Section 3.3);
- ◆ The Cost Models Supplied by the ILECs in this Proceeding do not Provide Full Disclosure of Model Inputs and Assumptions(See Section 3.4);
- ◆ The ILECs' Cost Estimates Overstate the Interstate Portion of Loop and Port Costs, and thus cannot be Used to Justify Increases in the Subscriber Line Charge (See Section 3.7);
- ◆ CMT revenue per line exceeds TELRIC SLC Cost and Synthesis Model Cost estimates for 41 of 44 Bell Operating Companies (See Table 1 in Section 3.7);
- ◆ Capital Cost and Depreciation Estimates are not Transparently Presented in the Cost Studies Submitted by the ILECs, and Shared and Common Costs are not Properly Allocated in the Cost Studies Submitted by the ILECs (See Sections 4.1 and 4.2);

- ◆ No Information is Provided Regarding Outside Plant Assumptions in the Cost Studies Submitted by the ILECs, (See Section 4.3);
- ◆ Forward-Looking Marketing Expenses are Not Incorporated into the ILEC Cost Studies, (See Section 4.6);
- ◆ The NASUCA Model Results Indicate that Forward-Looking SLC Costs are under \$5 for about Three-Quarters of Residential and Single-Line Business Customers, and Therefore that the SLC Cap Should not be Increased (See Section 5.2);
- ◆ Increasing the SLC Caps will Increase the Implicit Subsidy Flows Paid by Residential and Single-Line Business Customers and Received by Carriers and their other Customers (See Section 5.2);
- ◆ The NASUCA Model Results Demonstrate that Residential and Single-Line Business Customers are Contributing to the Support of the Network, and Do not Receive a Subsidy (See Section 5.3);
- ◆ Major ILECs Have Recently Interpreted Joint Cost Pricing to Require a Non-Zero Price for Advanced Telecommunications Services, and the ILECs' Cost Studies do not Reflect their View that a Portion of Loop Costs should be Assigned to Advanced Services when the Loop is Used for ADSL Service (See Section 7.1);
- ◆ Today's Public Switched Telephone Network (PSTN) Has Been Constructed for the Provision of Non-Voice Advanced Services, and the Subscriber Line Charge Pricing Policy of the Commission Needs to Reflect This Fact (See Section 8); and
- ◆ Interexchange Carriers (IXCs) are Imposing Real Costs on the Local Networks that They do not Have to Pay for Under CALLS since the Traffic-Sensitive Costs of the Feeder are being Recovered through an End-User Charge, Rather than from the IXCs that Cause the Costs (See Section 8.5).

## Conclusion and Recommendations

The economic and policy environment in the telecommunications sector is undergoing rapid and fundamental change. Therefore, traditional pricing policies such as increasing the Subscriber Line Charge as proposed under the CALLS order must come under increasing scrutiny for their impacts in this rapidly changing environment.

It is appropriate to use the forward-looking costs incorporated into state approved TELRIC rates and the FCC Synthesis Model to determine if an SLC Cap increase is warranted. The cost data show that the SLC should not go above \$5. However, at the same time, we do not specifically seek deaveraging below \$5 by asking in this proceeding for zones with costs below \$5 to be immediately priced at cost. In this

proceeding, the FCC should only stop the increases in the SLC, and not change the CALLS order in any other way.

The cap should not exceed \$5 since with this cap the ILECs are still collecting too much revenue – NASUCA estimates that customers with costs at or below \$5 are paying \$1,113 million more than cost, while customers with costs over \$5 are paying \$472 million less than cost. In any event, maintaining the SLC cap at \$5 would not cause any company to have a rate of return below the FCC's authorized return on the order of 11.25%. As shown in Appendix A, every Company, other than New York Telephone, Cincinnati Bell (Kentucky), and Southwestern Bell (Texas), is currently earning a return on interstate service that exceeds 11.25%.

Furthermore, we recommend that the Commission undertake a proceeding in which it identifies the shared and joint costs that should be allocated to non-supported services. This filing demonstrates that the Commission's cost allocation procedures do not provide protection to users of supported services, in violation of Section 254(k) of the Act.

The Commission can no longer avoid the allocation issue of Section 254(k) because this docket deals with what costs should be collected in the bundled exchange rate. Our submission shows that the network is designed to meet the more demanding requirements of data and video, and that the CALLS plan to collect all of these costs from basic exchange service is illegal because it requires supported services to subsidize non-supported services.

Finally, Section 254(k) directs the Commission to prevent supported services from subsidizing non-supported ones. The Commission's current pricing rules and cost allocation procedures require monopoly-supported services to subsidize non-supported and competitive interexchange toll usage since traffic-sensitive costs are recovered through the Subscriber Line Charge. NASUCA strongly urges the Commission to abide by the clear intent of the Act, and end implicit subsidies.

## 2 Purpose of the Statement

This statement addresses the issue of scheduled increases in the Subscriber Line Charge (SLC) under the Coalition for Affordable Local and Long Distance Service (CALLS) proposal.<sup>2</sup> On September 17, 2001, the FCC issued a Public Notice for the Initiation of Cost Review Proceeding for Residential and Single-Line Business Subscriber Line Charge (SLC) Caps -- CC Docket Nos. 96-262, 94-1. The Notice required price cap Local Exchange Carriers (LECs) to file forward-looking cost information associated with the provision of retail voice grade access to the public switched telephone network. Comments are due on January 24, 2002, and Reply Comments are due on February 7, 2002. These comments are presented by the National Association of State Utility Consumer Advocates (NASUCA) on the complex issue of proposed increases in the Subscriber Line Charge.<sup>3</sup> The consumers represented by NASUCA members have an immediate and direct interest in this proceeding. The Federal Communications Commission (FCC) will decide here whether to increase the SLC and thus the cost of basic service for residential customers by \$18.00 per year (or as high as \$1.9 billion for all residential customers in the United States). Based on the record here, the FCC cannot increase the SLC.

The SLC is a flat charge that was originally designed to recover the interstate portion of local loop costs from an end user. It is now responsible for the recovery of the allowed common line, marketing and transport interconnection charge (CMT) revenues. The SLC is subject to a cap that, particularly for residential customers, is often below the level that would enable the LEC to recover the entire CMT revenue.<sup>4</sup> The CALLS plan revised the system of common line charges by combining existing carrier and subscriber charges into one flat-rated SLC, added marketing and transport interconnection charge revenue recovery responsibility to residential and single-line business customers, and providing for limited deaveraging of those charges under specific conditions.<sup>5</sup>

In the CALLS Order (15 FCC Rcd 12962 (2000)), the FCC raised the cap for the primary residential and single-line business Subscriber Line Charge (SLC) to \$4.35 on July 1, 2000, and to \$5.00 on July 1, 2001. Further scheduled increases were also set forth over the next two years, not to begin until the July 1, 2002 annual access tariff

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<sup>2</sup> In the Matter of Access Charge Reform (CC Docket No. 96-262), Price Cap Performance Review for Local Exchange Carriers (CC Docket No. 94-1), Low-Volume Long-Distance Users (CC Docket No. 99-249), and Federal-State Joint Board On Universal Service (CC Docket No. 96-45). Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45. Adopted: May 31, 2000, Released: May 31, 2000.

<sup>3</sup> NASUCA is an association of 44 consumer advocates in 40 states and the District of Columbia. NASUCA's members are designated by the laws of their respective states to represent the interests of utility consumers before state and federal regulators and in the courts.

<sup>4</sup> Id., Paragraph 18.

<sup>5</sup> Id., Paragraph 252.

filings, and subject to the following Commission review in regard to the primary residential and single-line business SLC:

“[W]e shall review any increases to residential and single-line business SLC caps above \$5.00 to verify that any such increases are appropriate and reflect higher costs where they are to be applied. We will initiate and complete a cost review proceeding prior to any scheduled increases above this cap taking effect to determine the appropriate SLC cap. For this proceeding, the price cap [local exchange carriers (LECs)] have agreed to provide, and we will examine, forward-looking cost information associated with the provision of retail voice grade access to the public switched telephone network. We will address in that proceeding whether an increase in the SLC cap above \$5.00 is warranted and, if not, whether a decrease in common line charges is warranted.”<sup>6</sup>

According to the FCC, by reforming the common line rate structure, the SLC promotes competition and preserves Universal Service. The Commission also asserted that controlled and capped increases in residential SLCs promote competition and ensure that rate levels remain affordable, while SLC deaveraging benefits consumers and preserve universal service.<sup>7</sup> NASUCA, however, disagrees that this has been the result of the SLC under CALLS.

### **3 The Cost Studies Filed by the ILECS in This Proceeding Do not Justify an Increase in the Subscriber Line Charge Cap**

The FCC cannot reasonably conclude that an increase to the SLC caps is justified. Based on an analysis of the cost studies provided by the Incumbent Local Exchange Carriers (ILECs) for this proceeding, increases to the SLC cap called for in the CALLS proposal are completely unwarranted. Moreover, the current SLC cap may already be overstated.

The cost studies filed in this proceeding fail to justify an increase to the SLC cap because:

1. The submissions violate the forward-looking cost study standards established by the FCC in recent decisions:
  - a. The cost submissions fail to include the actual models used to estimate costs;

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<sup>6</sup> Public Notice for the Initiation of Cost Review Proceeding for Residential and Single-Line Business Subscriber Line Charge (SLC) Caps -- CC Docket Nos. 96-262, 94-1.

<sup>7</sup> Id., Appendix 3. Memorandum In Support of the Coalition For Affordable Local And Long Distance Service Plan.

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- b. The cost submissions fail to provide supporting information such as a detailed description of all algorithms, computations, and software associated with the study; and
    - c. The cost submissions fail to provide the essential input values used to run the models.
  2. The cost studies contain a number of fatal methodological flaws:
    - a. The studies are improperly designed to recover embedded costs, rather than forward-looking economic costs;
    - b. The utilization rates assumed in the study are not forward looking; and
    - c. The depreciation lives used in the studies are biased towards investors and do not reflect the useful economic lives of the underlying network elements.
  3. The ILECs have failed to meet the burden of proof that an SLC price increase is cost justified.
    - a. The ILECs provided insufficient evidence that would permit any party or the FCC to judge the reasonableness of their cost estimates -- any finding to the contrary would be arbitrary and capricious;
    - b. Approval of fatally flawed cost studies would represent an unexplained reversal of past FCC policy; and
    - c. The FCC cannot abdicate its role as a rational decision-maker by failing to exercise proper judgment concerning the reasonableness of the LEC cost estimates.
  4. A comparison with comparable UNE rates shows that the LEC cost estimates are grossly overstated.

The ILECs have filed cost studies that they contend support their position that an increase in the SLC is justified on the basis of the cost of service. The record clearly does not support such a conclusion. The ILECs have failed to provide the necessary support information that would permit the Commission and interested parties to evaluate the reasonableness of the studies. The Commission cannot approve the incomplete filings without reversing its view on what information needs to accompany a cost study. If the FCC were to approve such fatally flawed cost studies it would represent an unexplained reversal of past FCC policy concerning appropriate forward-looking costing principles, a clear violation of the directives of the Supreme Court.<sup>8</sup>

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<sup>8</sup> "While the agency is entitled to change its views on the acceptability of [a prior policy], it is obligated to explain its reasons for doing so." Motor Vehicle Manufacturers Association vs. State Farm Mutual. Automobile Insurance Company, 463 U.S. 29, 56, 103 S.Ct. 2856, 2873, 77 L.Ed.2d. 443 (1983) -- United States Court of Appeals (Fifth Circuit) 737 F.2d 1095, 1134 (D.C. Cir. 1984) {CALLS Appeal} Docket No. 00-60434, at Page 7.

Furthermore, verifying an increase to the SLC caps based upon cost studies that relies upon embedded costs, undisclosed algorithms, and unidentified state specific inputs is categorically inexcusable. The FCC cannot abdicate its role as a rational decision-maker by failing to exercise its proper judgment concerning the reasonableness of the LEC cost models and the resulting cost estimates. To do so would be contrary to the findings of the United States Court of Appeals.<sup>9</sup>

### **3.1 The FCC Must not Allow the CALLS-Proposed SLC Increases to Continue Based upon Studies for which other Parties have been Denied a Meaningful Opportunity to Review**

Access charge reform has been a thorny issue for almost two decades.<sup>10</sup> In an attempt to address industry concerns about access charges, the FCC approved the CALLS proposal. According to the FCC, this proposal was supposed to “bring lower rates and less confusion to consumers; and create a more rational interstate rate structure. This, in turn, will support more efficient competition, more certainty for the industry, and permit more rational investment decisions.”<sup>11</sup> While the FCC and the industry insiders that authored the proposal saw CALLS as a panacea, it has been less warmly received by others.

In response to early criticism of the original CALLS plan by consumer groups and state commissions, CALLS members filed a modified version of the proposal on February 25, 2000. The CALLS Order adopted by the FCC on May 31, 2000 reflects the modified CALLS proposal in that, among other things, it requires a review of “increases to residential and single-line business SLC caps above \$5.00 to verify that any such increases are appropriate and reflect higher costs where they are to be applied.” The Commission stated that the cost benchmark would be forward-looking economic costs.<sup>12</sup>

The cost review taking place in this proceeding is particularly important because the FCC declined to require cost studies prior to adopting the CALLS proposal. Rather, the FCC left to this proceeding to address “whether an increase in the SLC cap above \$5.00 is warranted and, if not, whether a decrease in common line charges is warranted.”<sup>13</sup>

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<sup>9</sup> An agency abdicates its role as a rational decision-maker if it does not exercise its own judgment, and instead cedes near-total deference to private parties' estimates—even if the parties agree unanimously as to the estimated amount. Cf. *Laclede*, 997 F.2d at 946 (“Even when the customer support is unanimous, however, FERC retains the responsibility of making an ‘independent judgment’ as to whether the settlement amount constitutes a reasonable remedy.”). CALLS Appeal at 13.

<sup>10</sup> CALLS Order at ¶2

<sup>11</sup> CALLS Order at ¶1

<sup>12</sup> CALLS Order at ¶83

<sup>13</sup> CALLS Order at ¶83 (footnote omitted)



Unfortunately, the CALLS members participating in this proceeding do not appear to be interested in allowing parties the opportunity to examine the reasonableness of the current SLC cap -- or its scheduled increase. The ability of parties to review the ILECs' cost estimates is severely impaired because of the ILECs' collective failure to provide such basic information as the computer models, formulas, and inputs used to obtain the cost estimates.

The FCC must not allow the CALLS-proposed SLC increases to continue based upon studies for which other parties have been denied a meaningful opportunity to review. Allowing CALLS members to perpetuate the charade that the SLC is less than the economic cost of service would be a disservice to all consumers and would reinforce the suspicions that CALLS is nothing more than an illicit backroom deal that unjustly benefits CALLS members at the expense of the American public.<sup>14</sup> In the remaining sections of Section 3 of our submission we describe how the ILEC's cost filings do not comport with the Commission's costing standards and therefore cannot be found to be supportive of the proposed increase in the SLC.

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<sup>14</sup> In a separate statement attached to the CALLS Order FCC Commissioner Harold Furchtgott-Roth describes the process by which the original CALLS proposal was modified as "fundamentally inconsistent with principles of neutrality and transparency that must govern agency decisionmaking." Commissioner Furchtgott-Roth points to the fact that the FCC "held a series of meetings with a select group of some -- but by no means all -- of the parties with interests in this proceeding" to negotiate a compromise, and that "the substance of what was discussed at these meetings was not publicly disclosed." "More dismaying" is the fact that, in return for certain modifications to the CALLS proposal, the FCC furtively agreed to resolve two issues that are unrelated to access charge reform in favor of CALLS members. "To brief the Commissioners and their staff regarding the outcome of the CALLS negotiations, the Bureau distributed briefing sheets outlining the incumbent carriers' concerns and making plain that the depreciation and special access matters had become a key part of the CALLS package. Nothing in this order, however, tells the public of this connection between this order and these other dockets." According to Furchtgott-Roth "it was entirely improper for the Commission to have permitted the unrelated matters of depreciation and special access become part of the negotiations."

FCC Commissioner Gloria Tristani pointed to the "numerous pro-consumer commitments" and their potential positive impact on consumers as a significant reason why she voted to approve the CALLS proposal. However, in a speech less than two weeks after CALLS was released she expressed concern that the long distance carriers were not honoring their commitments to pass through access charge savings to consumers because AT&T had already announced that it was raising its per-minute long distance rates. According to Commissioner Tristani, "at a minimum, this proposed increase appeared to violate the spirit of the reform package, which was touted as reducing rates for consumers." As a result she suggested "it might be advisable to put CALLS on hold until we get more satisfactory answers." See: <http://www.fcc.gov/Speeches/Tristani/2000/spgt007.html>

Unfortunately, consumers have not received many satisfactory answers since the CALLS Order was released. A recent Wall Street Journal article notes that the nation's three largest long distance carriers have just recently introduced their latest round of rate increases. See <http://interactive.wsj.com/archive/retrieve.cgi?id=SB1009932069671487280.djm>

### **3.2 The Cost Models Submitted by the ILECs for this Proceeding are not Forward-Looking Cost Models Based on Economic Costs and Verifiable Assumptions**

While there are countless ways to construct a cost model, there are two basic principles that must be adhered to in order to properly model an efficient forward-looking telecommunications network. First, the study should be based upon economic rather than embedded costs. As stated in the Commission's CALLS order: "For this proceeding, the price cap [local exchange carriers (LECs)] have agreed to provide, and we will examine, forward-looking cost information associated with the provision of retail voice grade access to the public switched telephone network."<sup>15</sup>

Second, there must be full disclosure of all assumptions, algorithms, and input data.<sup>16</sup> The study assumptions must be reasonable and well documented so that they may be verified. If these basic conditions are not met the model cannot be relied upon to provide reasonable results. Even the most precise model can provide erroneous cost estimates if the underlying inputs are inherently flawed or cannot be verified.<sup>17</sup>

Unfortunately, the cost submissions provided by CALLS members in this proceeding fail to satisfy these basic conditions.<sup>18</sup> Rather than providing accurate forward-looking cost estimates and detailed explanations of how these figures were calculated, these cost submissions are, at best, nothing more than a laundry list of unsupported figures. As a whole, the studies reviewed by NASUCA represent a collection of questionable methodologies and entirely unsupported assumptions. Each submission is more appropriately described as a "Black Box" that raises many more questions than it answers.<sup>19</sup> The FCC cannot justify the current SLC cap; much less authorize any

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<sup>15</sup> See CALLS Order, Paragraph 83.

<sup>16</sup> When reviewing forward-looking economic cost studies the FCC has explicitly stated that the model must be well documented, open to inspection, and that all supporting information must be fully disclosed. See, for example, DA 98-217 at Page 3: "Please provide supporting information that includes a detailed description of the proposed cost study and all underlying data, formula, computations, and software associated with the study. The documentation should include a complete listing of algorithms and formulas used in the study and in any pre-processing modules...if the proposal contains changes to the algorithms or inputs of a model under consideration by the Commission, however, such changes must be clearly documented." These principles are also supported by a number of state regulatory decisions. See, for example, Washington Utilities and Transportation Commission Docket No. UT-960369-Eighth Supplemental Order at ¶¶24-25, Connecticut Department of Public Utility Control Docket No. 95-06-17 released December 20, 1995 at Page 77, and Public Utilities Commission of Nevada Docket No. 96-9035 at ¶¶53-54.

<sup>17</sup> "GIGO" or Garbage In Garbage Out is a computer programming term that best describes this situation. A program or model's results are only as good as the information used to run the model.

<sup>18</sup> Due to the short time schedule set for this proceeding NASUCA limited its cost study analysis to the submissions of the RBOCs - BellSouth, Qwest, SBC, and Verizon. These firms were chosen because as a group they serve the vast majority of access lines in the United States.

increases to the cap, based upon the evidence at hand. To do so would be irresponsible and an abrogation of the FCC's responsibility to ensure that rates be just and reasonable.

### **3.3 The Cost Models Used for this Proceeding and Determining Increases in the Subscriber Line Charge Cap Should be Based on Forward-Looking Economic Costs, and not Embedded Cost Methodologies as Proposed by the ILECs**

Although the Regional Bell Operating Companies ("RBOCs") claim that their studies are forward-looking, nothing could be further from the truth. Rather these studies are embedded cost studies re-evaluated using current prices.

There are numerous examples in these submissions indicating that the models are designed to recover embedded costs. For example, Southwestern Bell Company (SBC) states "plant investments are computed for each component reflecting the mix of equipment used today."<sup>20</sup> SBC does not even attempt to explain why it believes its embedded plant represents the technological and design requirements of an efficient forward-looking network.<sup>21</sup> It is clear that SBC's studies are not forward-looking because they are based upon existing plant rather than the most efficient technology available.<sup>22</sup>

The FCC has been very clear that the existing plant mix should not be used in a forward-looking cost study:

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<sup>19</sup> Sprint relied upon the FCC's cost model. However, Sprint performed a sensitivity analysis, but did not disclose information concerning the derivation of the new inputs. Thus, NASUCA has been unable to audit the results to establish the reasonableness of the proposed changes.

<sup>20</sup> SBC Study, Attachment 1 at Pages 7 and 14. NASUCA cannot be certain that the remaining cost studies it has reviewed are designed to recover embedded costs because so little useful information has been disclosed. However, the limited documentation provided by BellSouth, Qwest, and Verizon suggests that this may be the case.

<sup>21</sup> BellSouth's Cost Calculator applies the embedded relationship between cable and structure to determine the cost of poles, conduit, and trenching. No attempt is made to determine the forward-looking cost of these structures. See BellSouth cost submission at Page 4. Verizon relies on its embedded network design. It lays out distribution and feeder plant right on top of existing plant. No effort is made to design the lowest cost network configuration, given the existing wire center locations. Verizon Cost submission, Attachment D, Page 5. QWEST asserts that it builds cable based on user-supplied inputs. However, it never provides evidence to confirm that these inputs are forward-looking. QWEST cost submission, Page 3.

<sup>22</sup> Providing embedded cost information is in direct conflict with the FCC's order initiating this proceeding. In DA-01-2163 the FCC explicitly stated, "the price cap [local exchange carriers (LECs)] have agreed to provide, and we will examine, **forward-looking cost information** associated with the provision of retail voice grade access to the public switched telephone network." (emphasis added) In failing to provide forward-looking cost information the RBOCs have assured that the FCC cannot determine that an increase to the SLC cap is justified.

“[e]xisting incumbent LEC plant is not likely to reflect forward-looking technology or design choices. Instead, incumbent LECs’ existing plant will tend to reflect choices made at a time when different technology options existed or when the relative cost of equipment to labor may have been different than it is today.”<sup>23</sup>

What this example illustrates is that SBC was correct to assert that its “study is not designed to establish the correct loop cost, rather it is to document the cost of providing such a service.”<sup>24</sup> Just like the other ILECs, SBC has incorrectly presented a reproduction cost study, something that has been explicitly rejected by the FCC, rather than a replacement cost study as required by FCC costing principles. That is, the ILECs have proposed a methodology that the FCC finds to be economically meaningless. Furthermore, the Commission recently argued before the Supreme Court that the reproduction methodology was “wooden and long-discredited”. The Commission added that the cost of replicating an incumbent’s existing facilities would produce rates “that reflect inefficient or obsolete network design and technology.”<sup>25</sup>

The FCC should not allow CALLS members to disregard its costing standards when attempting to support an increase in the SLC cap. To do so would unjustly enrich these firms at the expense of the American public.

### **3.4 The Cost Models Supplied by the ILECs in this Proceeding do not Provide Full Disclosure of Model Inputs and Assumptions**

Reviewing a cost study designed to estimate the cost of providing an efficient telecommunications network is an arduous task even under the best of circumstances. Due to the scheduling and procedural constraints of this proceeding, the difficulty of this task is even greater.<sup>26</sup> However, one does not have to delve too far into the ILECs cost submissions to discover fatal flaws. None of the ILECs provided its cost model or the inputs used to run the models. This alone is reason for the FCC to completely reject these submissions and deny attempts to further inflate the SLC cap. SBC claims that it

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<sup>23</sup> Inputs Order at ¶351 citing Platform Order, 12 FCC Rcd at 21350, Paragraph 66.

<sup>24</sup> SBC Study, Executive Summary, at Page 4.

<sup>25</sup> See: FCC Brief in Verizon Communications Inc. *et al.*, Petitioners v. FCC, in the Supreme Court of the United States, 00-511, 00-555, 00-587, 00-590 and 00-602, April 2001, at page 28, quoting Local Competition Order at ¶684.

<sup>26</sup> One must also consider the magnitude of the auditing task presented by this proceeding. For example, the FCC has taken over seven months to review the cost studies submitted by Verizon in Virginia. That proceeding encompasses a single company, a single study area, and a single set of inputs. Conversely, in this proceeding parties have less than three months to complete a similar task involving more than 10 companies and 181 study areas. Verizon alone has indicated the use of three distinct cost models. Further exacerbating difficulties is the fact that the ILEC cost submissions rely on state specific inputs, each of which, rightly, must be verified.

did not provide the actual inputs used in the model because they are proprietary and competitively sensitive.<sup>27</sup> This excuse has no merit. Regulated firms regularly provide commercially sensitive proprietary information to regulators and other neutral parties under standard proprietary agreements.<sup>28</sup> There is no reason why SBC or any other firm could not have provided its cost model and inputs under such an agreement.

The ILECs' conscious decisions to withhold cost models and inputs makes it impossible for parties to validate the accuracy of these models and because of this denial of due process it would be improper for the FCC to conclude that these cost estimates accurately reflect the operations of an efficient firm.<sup>29</sup> The FCC cannot ignore the importance of using reasonable model inputs in this proceeding. The FCC must not allow these companies to avoid scrutiny by deliberately failing to supply interested parties with any useful information. To do so would run counter to previous decisions of the FCC and various state commissions and by itself destroy the credibility of this proceeding.

Even without revealing the actual inputs used in their studies, the RBOCs have provided a second irrefutable reason for the FCC to reject these submissions. This is because the RBOCs cost models rely upon state specific inputs.<sup>30</sup> The FCC has explicitly rejected the use of state specific inputs in the Universal Service Proceeding because they are administratively unmanageable and inappropriate.

"We find that using company-specific data for federal universal service support purposes would be administratively unmanageable and inappropriate. Moreover, we find that averages, rather than company-specific data, are better predictors of the forward-looking costs that should be supported by the federal high-cost mechanism. Furthermore, we note that we are not attempting to identify any particular company's cost of providing the supported services. We are estimating the costs that an efficient provider would incur in providing the supported services."<sup>31</sup>

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<sup>27</sup> SBC Study, at Page 4.

<sup>28</sup> See for example, DA 01-2828, the order governing the use of proprietary wire center line counts in this proceeding. In this proceeding, NASUCA received proprietary line count information pursuant to the Commission's Interim Protective Order.

<sup>29</sup> For example, while SBC allegedly "utilized a computer model to calculate the forward-looking cost of the loops and ports that comprise residential voice grade telephone service" it did not provide a breakdown of its cost estimates by loop and port. SBC could have easily provided this information allowing parties to compare its alleged port costs with the port rates established by the FCC in In the Matter of Federal-State Joint Board on Universal Service CC Docket No. 96-45 and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs CC Docket No. 97-160. Tenth Report and Order, ("Inputs Order") released November 2, 1999.

<sup>30</sup> See, for example, SBC study at Attachment 1, Page 7, Verizon study at Attachment D, Page 2, and BellSouth at 4. NASUCA was unable to identify the use of such inputs by Qwest because so little information was provided in its cost submission.

<sup>31</sup> Inputs Order at 90. (footnotes omitted).

The FCC rejected company specific inputs because of the possibility that they could not be verified and that the inputs may be overstated.<sup>32</sup> To overcome these problems the inputs chosen for the universal service studies were generally derived from publicly available data sets. The conclusions drawn by the FCC in the Inputs Order are equally applicable here. The FCC must continue to rely upon cost model inputs that are both reasonable and verifiable.

Elsewhere in this document we use state specific TELRIC rates to judge the reasonableness of the ILECs' cost studies (See Table 1 in Section 3.7). Use of the state specific TELRIC prices is distinguishable from the FCC's decision in the USF docket because the state commissions have spent years evaluating the reasonableness of the inputs to the TELRIC studies. The FCC rejected ILEC sponsored, state specific inputs in the USF proceeding because it would be administratively unmanageable for the FCC to conduct a thorough review of the company-specific data.

### **3.5 It is Appropriate to Compare the Cost Information Provided by the ILECs with Reasonable Forward-Looking Cost Estimates**

The 1996 Telecommunications Act requires that states set cost-based prices for unbundled network elements. To help the states accomplish this goal, the FCC concluded that the state commissions should set prices for UNEs following a forward-looking economic cost methodology. In the Local Competition Order the FCC described its forward-looking cost-based pricing standard in detail. The FCC concluded that the price of a network element should include the forward-looking costs that can be attributed directly to the provision of that element, including a reasonable return on investment, plus a reasonable share of the forward-looking joint and common costs.<sup>33</sup>

The connection between the UNE loop and port rates established by state commissions and the cost information requested in this proceeding is easy to make because there is a direct, one-to-one relationship between the facilities underlying the aforementioned UNEs and the facilities in question in this proceeding.<sup>34</sup> However, the RBOCs have attempted to drive a wedge between the cost of providing loops and ports as UNEs and the cost information they have provided for this docket.

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<sup>32</sup> In this Proceeding, Verizon claims at Page 9 of Attachment D of its cost submission that "...investments are then made state specific, where appropriate, by applying a factor to the element to gross them up..." Does this mean that state specific values are only appropriate if they are greater than average costs? Based on the scant information provided in Verizon's cost submission this question cannot be answered.

<sup>33</sup> Local Competition Order at 673.

<sup>34</sup> "The costs for residential voice grade service are derived primarily from the loop and port cost components" of Verizon's models. See Verizon Study, Attachment D, Page 1.

For example, SBC argues that the Commission should remember that this is not a ratemaking proceeding<sup>35</sup> while BellSouth argues that the cost information it has provided should not be considered with respect to UNEs, universal service, or for any purpose other than verifying the increase to the SLC cap.<sup>36</sup> These arguments are clearly intended to conceal the fact that when compared to reasonable cost-based rates the RBOCs' cost estimates are unreasonable and do not justify an increase to the SLC cap.

Verizon also attempts to cloud the issue by separating access charges from loop and port costs, and by implying that the cost review taking place in this proceeding is unnecessary. Verizon argues that even though "the per-line costs in these studies are higher in some cases than the Price Cap CMT per-line and lower in others...in neither case should they be used to change the scheduled increases in the SLC caps" because "...the price cap system is not based on cost."<sup>37</sup> Verizon is essentially arguing that the FCC should ignore all of the cost data provided in this proceeding and simply authorize an increase to the SLC cap. This argument is utterly ridiculous; it fails to acknowledge that the sole purpose of this proceeding is to examine "forward-looking cost information...to address whether an increase in the SLC cap above \$5.00 is warranted."<sup>38</sup>

Additionally, Verizon claims that the Court of Appeals has endorsed the FCC's previous "rejection of arguments that the Commission should have used forward-looking costs to restructure access charges."<sup>39</sup> However, Verizon fails to cite the latter portions of this decision where the Court of Appeals states, "the FCC accordingly has delayed conducting a forward-looking cost-study because of time constraints and the technical uncertainty involved in carrying out a reliable cost study" and that the Court was "further assured [in supporting this conclusion] by the FCC's promise to conduct a cost-study before the SLC cap is set to rise over five dollars."<sup>40</sup> Therefore, contrary to Verizon's argument, a full reading of the court's decision confirms the fact that the FCC is obligated to review forward-looking cost studies in this proceeding to determine if it is appropriate to approve the scheduled increase to the SLC cap.

Not only are Verizon's attempts to sever the ties between access charges and the underlying costs misleading, but Verizon also completely ignores the fact that the FCC and many state commissions rely on economic cost data to judge the reasonableness of rates in regulated environments. Furthermore, Verizon fails to acknowledge that the

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<sup>35</sup> SBC, Executive Summary, Page 3.

<sup>36</sup> BellSouth Study, Page 1.

<sup>37</sup> Verizon Study, Page 6.

<sup>38</sup> CALLS Order at ¶83.

<sup>39</sup> Verizon Study, Page 6.

<sup>40</sup> Texas Office of Public Utility Counsel vs. FCC. US Court of Appeals, Fifth Circuit, Case No. 00-60434

courts have upheld the FCC's reliance upon forward-looking economic cost data to establish mechanisms to encourage economic efficiency.<sup>41</sup>

### **3.6 The States have Established UNE Rates that Provide a Reasonable Benchmark for Forward-Looking Cost Estimates**

The UNE loop and port rates established by the states provide reasonable forward-looking cost estimates because they are the result of thorough proceedings governed by the FCC's rules. When outlining its forward-looking cost methodology the FCC noted:

"that incumbent LECs have greater access to the cost information necessary to calculate the incremental cost of the unbundled elements of the network. Given this asymmetric access to cost data, we find that incumbent LECs must prove to the state commission the nature and magnitude of any forward-looking cost that it seeks to recover in the prices of interconnection and unbundled network elements."<sup>42</sup>

As a result the state commissions have conducted lengthy, often multi-phased, investigations into the forward-looking cost of providing UNEs involving "extensive workshops, hearings, and other types of discovery."<sup>43</sup> The veracity of these proceedings has been supported by the ILECs and verified by the FCC in a number of 271 proceedings.<sup>44</sup> Therefore, contrary to what the ILECs have argued, it is appropriate to

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<sup>41</sup> The Eight Circuit Court states: "The Seventh Circuit, for example, explained '[I]t is current and anticipated cost, rather than historical cost that is relevant to business decisions to enter markets . . . historical costs associated with the plant already in place are essentially irrelevant to this decision since those costs are 'sunk' and unavoidable and are unaffected by the new production decision.'" MCI Communications v. American Telegraph & Telephone Company, 708 F.2d 1081, 1116-17 (7th Cir. 1983), cert. denied, 464 U.S. 891 (1983). Here, the FCC's use of a forward-looking cost methodology was reasonable. The FCC sought comment on the use of forward-looking costs and concluded that forward-looking costs would best ensure efficient investment decisions and competitive entry. Iowa Utilities Board vs. FCC, US Court of Appeals, Eighth Circuit, Case No. 96-3321 (and consolidated cases) (emphasis added), July 21, 2000, Page 10.

<sup>42</sup> Local Competition First Report and Order, CC Docket No. 96-98, August 8, 1996, Paragraph 680.

<sup>43</sup> In the Matter of Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma, CC Docket No. 00-217, released January 22, 2001, at Paragraph 49. ("Kansas 271").

<sup>44</sup> RBOCs in seven states have been granted permission to provide in region long distance service after showing that they have complied with the 14-point checklist outlined in Section 271 of the 1996 Telecommunications Act. By requesting approval of its 271 application in a given state an RBOC indicates that it believes appropriate cost based UNE rates have been established by the state regulatory board. In approving a 271 application the FCC confirms that the state commission has fulfilled its duty to conduct a thorough proceeding and has established cost based UNE rates.



judge the accuracy of their forward-looking cost estimates by comparing them to other reasonable cost estimates. The FCC has relied upon such comparisons in the past and it should continue to do so in this proceeding.<sup>45</sup>

### **3.7 The ILECs' Cost Estimates Overstate the Interstate Portion of Loop and Port Costs, and thus cannot be Used to Justify Increases in the Subscriber Line Charge**

It is evident that the ILECs hope the FCC will base its decision to raise the SLC cap on cost studies that wholeheartedly deviate from the cost methodology espoused by the FCC and sound economic theory. These firms have also gone to great lengths to convince the FCC that it would be improper to compare the results of their models to UNE rates or to model runs from any other cost-based proceeding. Obviously, the ILECs would prefer to have their cost estimates judged in a vacuum because they are upwardly biased and do not provide accurate cost estimates by any reasonable measure.

The cost comparisons depicted in Table 1 and Appendix C provide overwhelming evidence that the cost estimates provided by the ILECs in this proceeding cannot be relied upon to verify the scheduled increase to the SLC cap.<sup>46</sup> On average, the ILEC cost estimates overstate the interstate portion of monthly loop and port costs by approximately \$2.32 per month or more than 50% of the average cost of interstate access.<sup>47</sup> This suggests that the ILECs have overstated total (interstate and intrastate) UNE loop and port costs by an average of \$8.40 per month.

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Verizon's New Jersey numbers illustrate the disparity between the submissions in this proceeding and in other dockets. In this docket, the Company contends that the forward-looking cost of the loop and port is \$29.31. Verizon Submission, Appendix D. In its 271 Application, the Company reports that the TELRIC cost of the UNE platform is \$12.89. The UNE platform includes both the port and loop, as well as usage. Verizon characterizes the \$12.89 value UNE platform as a "reasonable" TELRIC price for the unbundled network element. Application by Verizon New Jersey for Authorization to Provide In-Region Interlata Services in New Jersey, CC Docket No. 01-324, December 20, 2001, pp. 94, 98. In order to match the \$29.31 value filed in this proceeding with the \$12.89 that Verizon supports in its 271 application, the Company must believe that retail costs are approximately \$17 per month higher than UNE costs.

<sup>45</sup> See for example, In the Matter of Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services in Arkansas and Missouri, CC Docket No. 01-194, released November 16, 2001, at Paragraph 52. ("Arkansas 271").

<sup>46</sup> The State TELRIC SLC rates in Table 1 were derived from "A Survey of Unbundled Network Element Prices in the US," January 1, 2002, Billy Jack Gregg, Consumer Advocate, W.VA., <http://www.cad.state.wv.us/Intro%20to%20Matrix%2002.htm>

<sup>47</sup> In section 4.6, NASUCA has provided evidence indicating that the marketing costs associated with residential and single-line business exchange service are insignificant at approximately \$0.09 per month. Therefore, the addition of marketing costs (assuming they are accurately measured by the ILECs) cannot

Appendix C also indicates that the current SLC cap of \$5 allows for interstate access costs to be over-recovered in more than half of the 42 study areas in the comparison. As a result, consumers are charged more than \$660 million dollars per year in excess of what the SLC is intended to recover. If the SLC cap is raised to \$6, the inefficiency of CALLS will result in consumers being overcharged in excess of \$1.5 billion dollars per year.<sup>48</sup>

What is particularly alarming about these conclusions is that the existing UNE loop and port rates established by the state commissions very likely overstate the actual forward-looking cost of providing voice grade residential and single-line business connection to the network. This is because UNE rates are based upon network configurations that assume more expensive materials for the provision of advanced services, such as additional fiber optic cables and universal digital line carrier systems, that are not necessary for basic voice services. Therefore, without such assumptions, the cost of providing a voice only network would result in lower UNE loop and port rates, further widening the gap between CALLS and efficient cost recovery.<sup>49</sup>

**Table 1 -- Bell Operating Company CMT Revenue and Forward-Looking Cost Estimates**

Holding Company	Study Area	Price Cap CMT Per Line	SLC from Carrier Cost Studies**	SLC based on TELRIC Costs	NASUCA Synthesis Model SLC Cost
Verizon	Washington DC	\$ 3.81	\$4.38-\$6.05	\$ 3.75	\$ 3.07
Verizon	Maryland	\$ 5.68	\$5.58-\$7.08	\$ 4.74	\$ 4.22
Verizon	Virginia	\$ 6.53	\$5.95-\$7.55	\$ 4.45	\$ 4.37
Verizon	West Virginia	\$ 8.21	\$9.96-\$12.39	\$ 7.18	\$ 7.33
Verizon	New Jersey	\$ 6.21	\$5.92-\$7.33	\$ 3.32	\$ 3.97
Verizon	Pennsylvania	\$ 6.00	\$6.65-\$8.45	\$ 4.61	\$ 4.28
Verizon	Delaware	\$ 6.41	\$4.83-\$6.01	\$ 4.29	\$ 4.48
Verizon	New York/N. England	\$ 6.41	\$4.97-\$6.24	\$ 4.86	\$ 4.37
SBC	SWBT-AR	\$ 5.67	\$ 7.33	\$ 4.63	\$ 5.97
SBC	SWBT-KS	\$ 5.27	\$ 8.39	\$ 4.49	\$ 4.92
SBC	SWBT-MO	\$ 5.10	\$ 6.66	\$ 4.98	\$ 4.95
SBC	SWBT-OK	\$ 4.71	\$ 7.86	\$ 5.18	\$ 5.26

be contemplated as a reasonable explanation for the ILEC cost estimates to be so high in light of the fact that the FCC estimate that the economic costs of marketing are \$0.09 per month.

<sup>48</sup> This estimate includes the over-payments made by all customers, including residential, single-line business, and multi-line business customers.

<sup>49</sup> We note that the FCC has long-recognized that the cost of providing voice services is less than the cost of constructing a network for advanced telecommunications services. In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, FCC 98-279, October 28, 1998, Paragraph 70.

Holding Company	Study Area	Price Cap CMT Per Line	SLC from Carrier Cost Studies**	SLC based on TELRIC Costs	NASUCA Synthesis Model SLC Cost
SBC	SWBT-TX	\$ 5.37	\$ 7.86	\$ 4.65	\$ 4.26
SBC	Pacific Bell - CA	\$ 4.41	\$ 5.97	\$ 4.04	\$ 3.61
SBC	Nevada Bell- NV	\$ 6.05	\$ 7.15	\$ 5.28	\$ 4.81
SBC	SNET-CT	\$ 5.71	\$ 5.71	\$ 4.55	\$ 4.74
SBC	Ameritech-IL	\$ 4.47	\$ 5.96	\$ 4.02	\$ 4.03
SBC	Ameritech-IN	\$ 5.53	\$ 6.14	\$ 3.54	\$ 4.59
SBC	Ameritech-MI	\$ 5.32	\$ 6.85	\$ 3.45	\$ 4.67
SBC	Ameritech-OH	\$ 5.37	\$ 6.01	\$ 3.04	\$ 4.26
SBC	Ameritech-WI	\$ 5.07	\$ 6.23	\$ 3.96	\$ 4.29
BellSouth	Alabama	\$ 7.84	\$ 7.52	\$ 5.79	\$ 6.52
BellSouth	Florida	\$ 7.84	\$ 6.06	\$ 4.73	\$ 4.26
BellSouth	Georgia	\$ 7.84	\$ 6.42	\$ 5.10	\$ 4.70
BellSouth	Kentucky	\$ 7.84	\$ 8.25	\$ 5.08	\$ 6.45
BellSouth	Louisiana	\$ 7.84	\$ 7.64	\$ 5.63	\$ 5.60
BellSouth	Mississippi	\$ 7.84	\$ 9.88	\$ 6.45	\$ 8.46
BellSouth	North Carolina	\$ 7.84	\$ 6.82	\$ 4.99	\$ 4.81
BellSouth	South Carolina	\$ 7.84	\$ 7.51	\$ 5.37	\$ 5.61
BellSouth	Tennessee	\$ 7.84	\$ 6.83	\$ 4.74	\$ 5.70
Average		\$ 7.84	\$ 7.01	\$ 5.14	\$ 5.28
QWEST	Arizona	\$ 7.27	\$ 6.84	\$ 6.54	\$ 4.16
QWEST	Colorado	\$ 6.64	\$ 6.16	\$ 6.13	\$ 4.64
QWEST	Idaho-South	\$ 8.48	\$ 7.80	\$ 7.36	\$ 5.67
QWEST	Iowa	\$ 7.08	\$ 6.77	\$ 5.96	\$ 4.73
QWEST	Minnesota	\$ 6.66	\$ 6.36	\$ 5.35	\$ 4.39
QWEST	Montana	\$ 10.21	\$ 9.72	\$ 7.77	\$ 6.45
QWEST	Nebraska	\$ 7.29	\$ 6.93	\$ 5.33	\$ 5.26
QWEST	New Mexico	\$ 8.24	\$ 7.74	\$ 6.19	\$ 5.32
QWEST	North Dakota	\$ 8.45	\$ 7.98	\$ 5.64	\$ 4.69
QWEST	Oregon	\$ 7.60	\$ 7.17	\$ 4.76	\$ 4.71
QWEST	South Dakota	\$ 9.00	\$ 8.59	\$ 6.44	\$ 5.59
QWEST	Utah	\$ 5.45	\$ 5.04	\$ 4.99	\$ 3.92
QWEST	Washington	\$ 5.64	\$ 5.26	\$ 4.96	\$ 4.26
QWEST	Wyoming	\$ 10.91	\$ 10.29	\$ 7.53	\$ 7.16

\*\* Verizon did not file SLC costs. Instead, Verizon filed forward-looking loop and port costs. These costs were translated into SLC costs. The upper limit equals 25 percent of the filed amounts. The lower limit equals the filed costs times the ratio of SLC retail cost divided by total retail cost.

## **4 Important Assumptions in the Studies Submitted by the ILECs are Flawed**

Despite the lack of cost models and essential model inputs NASUCA was able to identify a number of significant methodological problems, unanswered questions, and inconsistencies that further undermine the value of the ILECs' cost studies. A brief sample of these issues, categorized by subject matter, follows.<sup>50</sup>

### **4.1 Capital Cost and Depreciation Estimates are not Transparently Presented in the Cost Studies Submitted by the ILECs**

The capital costs assumed within a cost study have a significant impact on the cost estimates a model produces. However, none of the studies submitted by the RBOCs gives an adequate explanation of what these rates are and how they were developed. For example, SBC states "...the studies reflect the company cost of capital, taking into account the company's expected rate of return on investments and the opportunities and risks the company experiences within its industry."<sup>51</sup> SBC then adopts the FCC authorized 11.25 percent rate of return for determining its forward looking cost in its cost submission.<sup>52</sup> These two statements imply that SBC believes that 11.25 percent is its current cost of capital.

We doubt that SBC would ever sponsor testimony supporting that opinion. For example, in Connecticut SBC argued that its cost of money was 12.19%.<sup>53</sup> The fact that the two statements appear in the same filing shows how incomplete the filing is, and that the FCC cannot rely on it. Moreover, in many instances, SBC describes the numbers in its documentation "are illustrative only."<sup>54</sup> Clearly, the only conclusion that any reader of the document can come to is that the whole document is illustrative.

On the other hand, Verizon asserts that it uses its current cost of capital, but never states what that number is or how it determined the unknown number.<sup>55</sup> QWEST simply

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<sup>50</sup> Section 8.5 addresses an additional flaw of the ILEC's studies -- their failure to address how digital-line carrier technology makes a portion of the loop investment traffic-sensitive.

<sup>51</sup> SBC Study, Attachment 1, Page 7

<sup>52</sup> SBC Cost Submission, Page 5 and Attachment 4, Page 2.

<sup>53</sup> Connecticut Department of Public Utilities, Application of the Southern New England Telephone Company for Approval of Cost Studies for Unbundled Network Elements, Docket No. 00-01-02, May 2, 2000, Transcript page 591.

<sup>54</sup> SBC Study at Page 4. Even though SBC claims that the figures it supplied are for illustrative purposes only, they nevertheless generate great concern because they are upwardly biased. For example at Attachment 2, Page 8 of its cost submission SBC shows a cost for a 48 pair aerial fiber cable of \$9.10 installed while the FCC estimates the cost to be only \$2.37 installed. See Inputs Order at Attachment A, Excel file "f99304a1" at tab "FIBRCABL".

<sup>55</sup> Verizon Cost Submission, Attachment D, Page 1.

states that its cost of capital is 11.7 percent without any explanation of how it arrived at that number.<sup>56</sup>

This same problem exists throughout the RBOCs' submissions with regard to depreciation. Depreciation lives and net salvage percentages have a significant impact on forward-looking cost estimates. NASUCA was unable to judge the reasonableness of the rates proposed by the RBOCs because these values were not provided with their cost submissions. Nor was there any documentation explaining how these enigmatic figures may have been derived. Without these inputs or adequate descriptions of their basis, the FCC cannot conclude that they are reasonable. Alternatively, as both current and previous cost submissions have shown it is very likely that these RBOC proposed values are unreasonable. For example, Verizon claims that its "cost studies utilize GAAP [Generally Accepted Accounting Practices] depreciation lives"<sup>57</sup> even though the FCC has already explicitly rejected this proposal in its Inputs Order, stating:

"the projected-life values currently used by LECs for financial reporting purposes are inappropriate for use in the model. In addition, the commenters proposing these values have not explained why the values used for financial reporting purposes would also reflect economic depreciation. The depreciation values used in the LECs' financial reporting are intended to protect investors by preferring a conservative understatement of net assets, partially achieving this goal by erring on the side of over-depreciation. These preferences are not compatible with the accurate estimation of the cost of providing services that are supported by the federal high-cost mechanism."<sup>58</sup>

Moreover, the FCC also found that the firms supporting this proposal:

"offer no specific evidence that this displacement [of their property] will occur at greater rates than the forward-looking Commission-authorized depreciation lives take into account. The record is particularly silent regarding the displacement of technologies associated with the provision of services supported by the federal high-cost mechanism. We do not believe that the LEC industry data survey's projected lives have been adequately supported by the record in this proceeding to justify their adoption."<sup>59</sup>

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<sup>56</sup> QWEST Cost Submission, Page 5.

<sup>57</sup> Verizon Study Attachment D, Page 1.

<sup>58</sup> Inputs Order at ¶429.

<sup>59</sup> Inputs Order at ¶428.

The conclusions reached in the Inputs Order are equally applicable here. The universal service cost model is used to determine the cost of providing basic voice services, not advanced telecommunications services. In this proceeding, the Commission has set out to identify the cost of providing retail voice grade access to the public switched telephone network.<sup>60</sup> Therefore, for the same reasons provided by the FCC in the Inputs Order it is impossible for the FCC to conclude that any of the ILECs' inputs properly reflect the cost of providing voice grade access to the public switched network.

#### **4.2 Shared and Common Costs are not Properly Allocated in the Cost Studies Submitted by the ILECs**

According to SBC, it calculated shared and common costs including such costs as uncollectibles, call completion, and customer services.<sup>61</sup> What is not explained is why uncollectibles are not assigned directly to the service from which they are generated or why call completion, a traffic-sensitive cost, is included in a study that purports to identify non-traffic-sensitive costs.<sup>62</sup> SBC also does not explain how it accounted for the fact that the costs associated with customer services like connection and disconnection are already recovered in retail non-recurring rates. Economic efficiency is hardly enhanced by double-recovering connection and disconnection costs through the Subscriber Line Charge.

One must ask if shared and common costs were allocated to the interstate jurisdiction, and, if so, how? This question must be asked because SBC has included an assessment of state regulatory fees in its loop cost estimates.<sup>63</sup> This inflates loop cost estimates and is not appropriate. The FCC's rules require regulatory fees to be booked to Account 7240 – "Operating Other Taxes" and, per Sec. 36.412(c), they should then be assigned jurisdictionally based on how they are assessed. SBC has included in its cost studies an expense that is already allocated to the state jurisdiction; hence the company is attempting to use the SLC to double recover this expense.

The cost submission of Sprint also illustrates the need for the FCC to take a closer look at the development of the model inputs proposed in this proceeding. Sprint incorrectly assigned 100% of common costs to the loop. Unsurprisingly, Sprint has not explained why it feels it is appropriate to recover 100% of the firm's common costs through the Subscriber Line Charge. Nevertheless, even if Sprint had provided an explanation, this

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<sup>60</sup> CALLS Order, Paragraph 83.

<sup>61</sup> SBC Study, Executive Summary, at Page 5.

<sup>62</sup> Verizon also lumps "all retail costs for marketing, customer service and support, and billing expenses" into its loop cost calculations. See Verizon study Attachment D, Page 1. However, Verizon does not explain why it is appropriate to consider, for example, the marketing cost associated with caller number identification, but not the revenue of this high margin service. Should the SLC cap be increased to subsidize the marketing of vertical services?

<sup>63</sup> SBC Study, Attachment 2, at Page 33.

practice is still improper and contrary to previous decisions of the FCC because it over-allocates common costs to loop facilities.<sup>64</sup>

#### **4.3 No Information is Provided Regarding Outside Plant Assumptions in the Cost Studies Submitted by the ILECs**

The ILECs did not provide any meaningful information regarding outside plant inputs in their submissions. SBC did indicate that it used proxy information because the company did not have the time necessary to gather comprehensive state specific data within the time constraints of this proceeding.<sup>65</sup> SBC claims that proxy information was selected from states with “similar characteristics” but there is no explanation of why, for example, it considers cost information for outside plant in Missouri to be representative of costs in Connecticut, Illinois, Michigan, Nevada, Ohio, and Wisconsin.<sup>66</sup>

The cursory information provided by SBC indicates that there are significant flaws in its studies that overstate the cost of providing voice access. For example, SBC claims that its loop study employs a weighted average of two possible drop cable configurations - a single pair and two pair configuration.<sup>67</sup> Not only does SBC fail to supply this figure or its derivation, but also the assumption that a customer premises would be connected by a drop containing only a single twisted pair is ludicrous and results in an overstatement of costs.<sup>68</sup>

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<sup>64</sup> “We conclude that a second reasonable allocation method would allocate only a relatively small share of common costs to certain critical network elements, such as the local loop and collocation, that are most difficult for entrants to replicate promptly (i.e., bottleneck facilities). Allocation of common costs on this basis ensures that the prices of network elements that are least likely to be subject to competition are not artificially inflated by a large allocation of common costs.” See: In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers CC Docket No. 95-185. First Report and Order, released August 8, 1996 at ¶ 696.

<sup>65</sup> SBC Study, Attachment 1, Page 7.

<sup>66</sup> It is interesting to note that SBC attributes the use of proxy information to the abbreviated time schedule set for this proceeding. This is particularly interesting because as a sponsor of the CALLS proposal the company should have been aware that it would be required to submit a detailed forward-looking cost study in this proceeding as far back as May 31, 2000 when the CALLS Order was issued. SBC could also have requested that the FCC extend the time schedule of this proceeding and postpone the scheduled SLC cap increase so that more appropriate cost submissions could be prepared. SBC chose to do neither.

<sup>67</sup> SBC Study, Attachment 1, Page 9.

<sup>68</sup> This assumption overstates costs because most of the cost of providing drops to customers is associated with labor and cable sheath. For example, assume that the typical residence has 1.2 pairs in service, and it costs \$0.80 per foot to place a drop cable and \$0.01 per pair foot in materials. It follows from SBC’s assumption that it costs \$0.81 per pair foot to provide a given percentage of drops. Alternatively, when it is assumed that every drop contains at least two pairs of cable the cost per pair foot is only \$0.68  $[(\$0.80 + 2 * \$0.01) / 1.2]$ .

In its submission, SBC claims that its loop cost calculations include cable support structures and a mix of distribution cables that varies by geographic zone, but neither the actual percentages nor the methodology behind such values are provided.<sup>69</sup> SBC also estimates the distance length of distribution cables. However, neither this distance nor its derivation is provided.

SBC assumes that Universal Digital Loop Carrier (“UDLC”) will be used 75% of the time while Integrated Digital Loop Carrier (“IDLC”) is only used 25% of the time.<sup>70</sup> Although the company agrees that IDLC is more efficient,<sup>71</sup> and has previously used IDLC in cost submissions to the FCC,<sup>72</sup> SBC does not explain why forward-looking IDLC systems are not used exclusively throughout its allegedly forward-looking model as required by the FCC.<sup>73</sup> IDLC is the appropriate technology for the products being studied because there is no need to send the loops through an expensive UDLC channel bank.

SBC claims that fiber cable size is generally determined by the study area but limits the cable sizes to 24, 48, or 216 fibers per cable. SBC does not explain why it is efficient to limit cable sizes to these possibilities when the FCC acknowledges that an efficient solution to sizing fiber cable recognizes nine different fiber cable sizes.<sup>74</sup>

#### **4.4 Information on Fill Factors is not Provided in the Cost Studies Submitted by the ILECs**

Fill factors are used to increase per line costs of various facilities to recover the cost of unused network capacity that results from breakage, customer churn, and near term growth in demand. All else being accurate, if fill factors are assumed to be unreasonably low, a model will provide estimates of an inefficient network and costs will be overstated. This is because a relatively small number of lines in service will be

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<sup>69</sup> SBC Study, Attachment 1, Page 10.

<sup>70</sup> Verizon makes this same mistake because its model assumes that electronics are necessary at both ends of a fiber loop (UDLC) rather than the fiber being terminated directly to the switch with IDLC. See Verizon Attachment D at Page 4.

<sup>71</sup> SBC Study, Attachment 1, Pages 10 and 16.

<sup>72</sup> “The DLC placements in the BCPM uses Integrated Digital Loop Carrier technology. This technology eliminates many of the costs associated with standard or “universal” systems.” “Benchmark Cost Proxy Model: Model Methodology,” Pacific Bell, Sprint, and U S West, January 30, 1997, Page 24.

<sup>73</sup> In modeling a forward-looking network the FCC required the use of GR-303 capable hardware on IDLC systems. See: In the Matter of Federal-State Joint Board on Universal Service CC Docket No. 96-45 and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs CC Docket No. 97-160. Tenth Report and Order, released November 2, 1999. At footnote 593. This conclusion is also supported by the New Jersey Board of Public Utilities which stated that “that the use of 100 % IDLC is an appropriate and realistic forward-looking assumption.” Docket No. TO00060356 at Page 6.

<sup>74</sup> See Inputs Order, Attachment A, Excel file “f99304a1” at tab “FIBRCABL”.



responsible to recover the cost of an inefficient level of excess capacity. Since the RBOCs failed to provide the fill factors used in their cost studies, it is impossible to determine if the RBOCs' application of fill rates result in accurate or overstated loop cost estimates. SBC did, however, indicate that it used actual or embedded fill rates in its study.<sup>75</sup> This in itself presents a credible reason to reject this study because the FCC explicitly rejected SBC's use of actual fill in a recent 271 proceeding because it failed to consider forward-looking fill or that the fill factor would increase over time.<sup>76</sup>

#### **4.5 Other Inconsistencies and Unstated Assumptions in the Cost Models also Call into Question the Efficacy of the Models used by the ILECs**

In addition to the many fundamental problems identified in the cost submissions there are contradictions that call into question the efficacy of the models. For example, SBC claims that when feeder lengths exceed 12k feet, fiber feeder and DLC systems were modeled because they are the most efficient loop design.<sup>77</sup> However, SBC later claims that copper feeder is assumed for all loops whose length is less than 15k feet.<sup>78</sup>

Verizon does not explain why it is appropriate for its Link Cost Model to assume 100% fiber feeder, but this same assumption is inappropriate to use in the Loop Cost Analysis Model. Apparently Verizon cannot decide which network configuration is efficient and forward-looking.

There are a number of other issues that the RBOC cost submissions failed to discuss and/or provoked serious questions that must be considered.

- ◆ Loop length is a significant driver of overall loop costs. Therefore, how a model determines customer location will have a significant impact on cost estimates. While this is generally a heavily discussed issue in other cost proceedings, the RBOCs have completely ignored this topic in their submissions.<sup>79</sup>

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<sup>75</sup> SBC Study, Attachment 2, Pages 27-28, 30-31. Verizon also claims to have used actual state specific fill factors in its studies. Verizon Study, Attachment D, Page 2.

<sup>76</sup> In the Matter of Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma, CC Docket No. 00-217, released January 22, 2001, at Paragraphs 79-81 ("Kansas 271").

<sup>77</sup> SBC Study, Attachment 1, Page 10.

<sup>78</sup> Id.

<sup>79</sup> See, for example, Verizon study Attachment D, at Page 9. It is interesting to note that SBC did offer a halfhearted explanation of how it estimated loop lengths in its study. However, its explanation is insufficient and faulty. SBC asserts that its model correctly estimates the length of the average loop in part because "the larger the population of loops the greater the chance that a random sample will be representative." This is incorrect. The representative quality of a random sample depends upon the size of the sample, and the variance of the underlying population, not the size of the population.

- ◆ The RBOCs have not explained how they accounted for the fact that structures like conduit and poles are shared. A portion of support structure costs must be assigned to reflect the fact that other firms, such as cable television, and electric, gas, and water utilities, often co-own these facilities.<sup>80</sup> Additionally, these studies must reflect the fact that a portion of “Telco assigned” support structure is also used to provide interoffice and dedicated transport. Without accounting for sharing among multiple firms and multiple services loop costs will be inflated. Absent any discussion the FCC can only conclude that 100% of structure costs were assigned to the local loop by the ILECs. This assignment is inappropriate.
- ◆ The RBOCs have failed to present any information regarding how OSS transition costs are handled. Since this discussion is conveniently absent, NASUCA is concerned that a portion of these costs are being assigned to the loop and proposed to be recovered by the SLC.
- ◆ The local loop provides telecommunications firms with the ability to provide a customer with local and long distance voice communications and advanced telecommunications services like xDSL. Conspicuously absent from the RBOCs cost submissions is any discussion of how the provision of xDSL affects the way in which the cost of the loop should be allocated. In state proceedings, SBC and Qwest have argued that 50% of the cost of a loop used for data and voice should be allocated to DSL service (See Section 7.1 for a summary of the ILECs’ position that the loop is a shared cost).

#### **4.6 Forward-Looking Marketing Expenses are Not Incorporated into the ILEC Cost Studies**

Marketing expenses are incurred to promote particular product lines, retain or attract customers, and to enhance the general reputation of the carrier. It is generally acknowledged that telephone marketing expenses are incurred to promote vertical and enhanced services and to manage the special needs of business customers. Seldom, if ever, has there been an advertisement to encourage a customer to purchase your genuine telephone subscriber line service. Due to the requirement to advertise the availability of service, the Synthesis Model includes a limited marketing expense as part of the forward-looking cost of universal service.<sup>81</sup> Since there are no other forward-looking marketing costs associated with the SLC, this marketing expense should be the maximum expense included in a forward-looking cost study.

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<sup>80</sup> Inputs Order, Paragraph 241.

<sup>81</sup> 47 U.S.C. Section 214(e)(1)(B), see also Inputs Order Paragraph 405.

The Synthesis Model sets the marketing expense value at \$0.09 per month per line. This estimate includes marketing expenses for multi-line business customers, and thus, over estimates the forward-looking cost of residential and single-line business service. It excludes the marketing cost associated with vertical and new services, and thus, approximates the marketing cost associated with providing voice grade service.<sup>82</sup>

Because the ILEC forward-looking filed cost studies generally do not identify marketing expenses as a separate item, it is not clear how those studies treated this expense. The QWEST study, however, argues that marketing expense is not a forward-looking cost of access service. It notes that these “costs were not specifically associated with marketing the services in the baskets to which they had been previously allocated, but instead were a residual of the Part 32 accounting and Part 36 separations processes.”<sup>83</sup> QWEST argues that “it would be inappropriate to compute a cap on the SLC using a forward looking estimate of marketing expenses associated with the services in the CMT basket.”<sup>84</sup> QWEST provides the embedded cost of marketing, which averages \$0.41 per line per month for its study areas.<sup>85</sup> Verizon also provides the embedded cost of marketing, which averages \$0.54 per line per month for its Bell Operating Company study areas.<sup>86</sup> The Commission should rely on its own forward-looking marketing expense estimate rather than embedded cost data submitted by the ILECs.

#### **4.7 Only Allowed Marketing Expenses should be Incorporated into SLC Rates**

Marketing expenses are assigned to the interstate jurisdiction through the separation process. Marketing expenses were assigned to price cap baskets on the basis of the relative investment. Because a high percentage of interstate investment is assigned to the common line, the common line basket was responsible for the recovery of a high percentage of the marketing expenses. The FCC, however, has recognized the marketing expenses are not directly related to the provision of access services. The FCC noted that the ILECs do not advertise their access products to the IXCs. To align recovery with cost causation, the FCC removed these expenses from the traffic-sensitive baskets and transferred them into a new marketing basket. Cost recovery responsibility was primarily assigned to the multi-line business PICC, and through a cascading formula, remaining allowed revenues were recovered on a per minute basis. The SLC for primary residential customers and single-line business customers was excluded from this formula.

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<sup>82</sup> Inputs Order, Paragraphs 403-407.

<sup>83</sup> QWEST cost filing at 7

<sup>84</sup> *Id.*, at 7.

<sup>85</sup> *Id.*, Attachment 1.

<sup>86</sup> Verizon Cost Filing, Attachment C

Next, the FCC merged marketing expenses with other common line allowed revenue when it established the CMT revenue. By so doing, all common line rate elements are required to participate in the recovery of the marketing expense. Relying on evidence that incumbent price cap LECs incurred marketing costs related to residential and single-line business customers, the FCC allowed recovery of the marketing expenses to be collected through the primary residential and single-line business SLC. The evidence to support residential and single-line business marketing expenses, however, was incomplete and sparse, relying on two *ex parte* presentations. The Ameritech *ex parte* presentation claimed that the company spent \$20 million on advertising to residential and single-line business customers.<sup>87</sup> While not insignificant, the \$20 million value pales in comparison to the entire Ameritech marketing expense of \$488 million.<sup>88</sup> It certainly should not be used by the FCC or others to support a finding that residential customer should bear equal responsibility for the recovery of marketing expenses. The United States Telephone Association (USTA) *ex parte* asserts that it did a study and that study reports that there is advertising for residential customers.<sup>89</sup> USTA never filed the study, and never provided any details of the study.

Throughout this process of transferring the recovery of the marketing expenses to the common line rate elements, the FCC failed to recognize that the price cap ILECs do not advertise to their end-user for the purchase of end-user access. Thus, just as the ILECs do not advertise to IXCs and thereby should not recover marketing expense from the IXCs, neither should the end-users be required to pay for the marketing expenses. Of course, using this reasoning, the ILECs face the dilemma that there is an expense for which there is no explicit recovery mechanism.

Alternatively, the FCC could acknowledge that the marketing expenses assigned to the interstate jurisdiction are designed to attract and retain customers. Without the customers, the ILEC would not collect any switched access or end-user revenue. Therefore it is necessary to assign a portion of the marketing expense to all access baskets. In addition, because most of the marketing expense that is customer and not product specific is directed toward the retention of business customers, the overwhelming majority of the marketing expense should be recovered through multi-line business rate elements.

Finally, the marketing expenses allocated to the CMT revenues included only those expenses that were formerly assigned to the common line basket, the traffic-sensitive baskets, and the switched services within the trunking basket.<sup>90</sup> The FCC found that

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<sup>87</sup> Letter from Anthony M. Alessi, Director, Federal Relations, Ameritech, to William F. Caton, Acting Secretary, Federal Communications Commission, September, 11, 1997, CC Docket No. 96-262.

<sup>88</sup> Armis 43-04, 1996.

<sup>89</sup> Letter from Frank G. Kennedy, Director, Legal and Regulatory Affairs, United States Telephone Association, to William F. Caton, Acting Secretary, Federal Communications Commission, September 29, 1997, CC Docket No. 96-262.

<sup>90</sup> Section 69.156.

special access and interexchange services are marketed to end-users and therefore, rates for those services should continue to recover marketing expenses.<sup>91</sup>

The Verizon cost filing, however, adds all interstate marketing cost to the costs that are to be recovered through SLCs. The cost filing shows the development of these costs. It sums the base factor portion (BFP) expenses less marketing expenses for the year 2000, and total interstate marketing costs.<sup>92</sup>

Table 2 compares the Verizon cost filing to the ARMIS 43-01 and 43-04 filings for the Verizon Bell operating company study areas for the year 2000. The difference between the ARMIS 43-01 common line expenses and the cost filing common line expenses are listed in column C. This difference is equal to the ARMIS 43-04 common line marketing expense listed in column F. The marketing expense as reported in the cost filing, listed in column D, is equal to 43-04 interstate marketing expense listed in column E.

The interstate marketing expense is equal to not only the common line and traffic-sensitive marketing expenses, but also includes the special access and interexchange marketing expenses. The special access and interexchange marketing expenses should be recovered from special access and interexchange customers and should not be assigned to CMT revenue for recovery through SLCs. At this time it is not clear if this mistake is only in the current filing or permeates Verizon's and other carriers' tariffs. We urge the FCC to investigate this issue and, if necessary, to reduce the CMT revenues and SLC charges accordingly.

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<sup>91</sup> Access Reform Order, Paragraph 323.

<sup>92</sup> Verizon Cost filing, Attachment C.

Table 2 -- Comparison of Verizon Cost Filing to the ARMIS 43-01 and 43-04 Filings for the Year 2000

Verizon Study BOC Study Areas	Total Common Expenses	BFP Expenses less Market	BFP Market	Marketing Addition	Interstate Marketing	Common Line Marketing	Traffic-sensitive Marketing	Special Access Marketing	IX Marketing
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Washington DC	34,744	32,865	1,879	8,288	8,288	1,879	1,945	4,464	-
Maryland	180,212	172,173	8,039	18,561	18,561	8,039	3,107	7,416	
Virginia	191,401	176,260	15,141	30,330	30,330	15,141	5,187	10,000	2
West Virginia	55,561	53,131	2,430	4,349	4,349	2,430	875	1,033	11
Delaware	33,140	31,676	1,464	2,791	2,791	1,464	379	947	2
Pennsylvania	325,970	309,776	16,194	32,225	32,225	16,194	3,516	12,504	11
New Jersey	340,858	323,578	17,280	37,599	37,599	17,280	6,024	14,273	22
New York/ New England	986,626	941,775	44,851	124,365	124,365	44,851	17,897	61,557	59
Source	Armris 43-01	Verizon Filing	Calculated	Verizon Filing	Armris 43-04	Armris 43-04	Armris 43-04	Armris 43-04	Armris 43-04

## **5 The Model Used for NASUCA's Analysis is a Public, Forward-Looking, Economic Cost Model which Estimates Costs Based on the Most Efficient Technology Available – It is Therefore a Useful Tool for Assessing the Proposed Increases in the Subscriber Line Charge**

We have provided a number of reasons why the ILECs' cost studies should not be used to judge the economic basis for increasing the Subscriber Line Charge. In this section we provide forward-looking economic cost data that was derived from the Commission's Synthesis Model.

The Synthesis Model used by NASUCA meets the requirements that the FCC has established for reviewing any increases to residential and single-line business SLC caps. The model is a forward-looking economic cost model, and it is designed to supply the cost of voice grade access to the public switched network.<sup>93</sup> In addition, the model is in the public domain, is being applied uniformly to all states, and estimates cost based on the most efficient technology available.

The entire model can be downloaded from the FCC's web page,<sup>94</sup> and any individual can run the model. The source code for the model is also provided in a file folder as part of the package that is downloaded from the web page. The source code allows individuals and parties to examine every equation, and verified every action the model undertakes in estimating the forward-looking cost of service. Every input value has been released into the public domain.<sup>95</sup> It is therefore possible to discuss the reasonableness of these values without having to enter into a proprietary agreement. Only two sets of values are covered by proprietary agreements -- the customer location data set, also known as the PNR data, and the wire center line counts. Individuals and parties have been able to obtain the use of the PNR data for use in FCC proceedings for a long time.<sup>96</sup> Recently, the FCC has allowed parties to obtain the use of line count data for use in this cost proceeding.<sup>97</sup>

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<sup>93</sup> The Commission has exercised caution about using the Synthesis Model for estimating the cost of unbundled network elements. It should not hesitate to use the model in the immediate proceeding because, as with the universal service proceeding, the model would be used to identify the cost of providing retail voice grade access to the public switched telephone network.

<sup>94</sup> <http://www.fcc.gov/ccb/apd/hcpm/>

<sup>95</sup> In the Matter of the Federal-State Joint Board, CC Docket No. 96-45, Ninth Report and Order and Eighteenth Order on Reconsideration, FCC 99-306, rel. November 2, 1999 (Inputs Order).

<sup>96</sup> Federal-State Joint Board, CC Docket No. 96-45, Interim Protective Order, 15 FCCRcd 10183 (Common Carrier Bureau 2000).

<sup>97</sup> In the Matter of the Cost Review Proceeding for Residential and Single-Line Business Subscriber Line Charge (SLC) Caps, CC Docket No. 96-262, Order, Released December 6, 2001. This order allows parties to use the line count data to produce loop cost studies and evaluate the cost studies of other parties in this proceeding. We urge the Commission to release these data into the public domain. Withholding these data reduces the possibility of having a reasonable and fair debate regarding the

The model platform and inputs have not been altered to provide an advantage for any specific state or carrier. Each carrier's cost is estimated using the same equations, formulas, and input values. For example, the cost of a 100 pair 24-gauge cable is the same for all carriers. This uniformity will allow the FCC to set SLC caps impartially and without prejudice to any carrier. Alternatively, if the FCC were to adopt the proprietary model of one carrier, it would not know if there were any particular equations or inputs in it that would bias the results in that carrier's favor.

Adopting one standard does not mean that inputs do not vary due to local conditions. The model contains variables that change given changes in population density, soil, and other terrain characteristics. Rather it implies that these variances will be the same for all carriers. The differences in cost due to different levels of population density will have the same affect on every carrier.

The model uses efficient and available equipment to provide service. Digital switching equipment is placed in the wire centers. Fiber optic systems and electronic equipment are used to connect wire centers, and, where appropriate, are placed in feeder networks. Customers are located within the census block where they live and work. Because of data limitations, customers are not located at exact geo-coded locations. Instead, their locations are spread uniformly along the roads within a census block. Once the customers are located, a minimum spanning tree algorithm connects them to the wire center. This algorithm constructs the lowest cost network configuration available.

### **5.1 The NASUCA Model Covers 80 Study Areas, and the Underlying Assumptions are Robust Concerning Costs and the Engineering Design of the Loop**

The analysis of forward-looking cost will focus on the results generated by the Synthesis Model for 80 study areas. To be included, the study area must be a price cap carrier and a non-rural study area. An excluded study area would be, for example, Sprint Florida, which is a price cap rural study area and NorthState, which is non-price cap non-rural study area. Appendix A provides a list of study areas included in the analysis.

Cost by UNE zone can be derived for 76 of these carriers. The other four carriers develop zones on a sub-wire center basis.<sup>98</sup> For example, the business district of wire center A and the business district of wire center B are combined to form zone 1, and the rural area of wire center A and the rural area of wire center B are combined to form zone 2. Because the Synthesis Model is run on a wire center basis, it is not possible to

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model's ability to estimate the forward-looking cost of service and hinders the ability of the Commission to make rational decisions regarding the level of SLC caps.

<sup>98</sup> These study areas are QWEST Wyoming, Montana, Arizona, and Colorado.



develop zone cost for these four study areas.<sup>99</sup> For all other carriers, the UNE zone is a combination of wire centers, and the zone cost is the weighted average cost of the wire centers within that zone.

There are 181 price cap study areas that are eligible to receive interstate access support and are governed by the SLC rules adopted in the CALLS order.<sup>100</sup> These study areas serve approximately 173 million switched access lines. The 80 modeled study areas serve 165 million lines or approximately 95% of the price cap regulated lines.<sup>101</sup>

The Synthesis Model generates total monthly forward-looking cost per line by wire center for each study area. The wire center costs can be aggregated into UNE zone costs. Zone cost results, identified by carrier, are provided in the proprietary Appendix B. Summaries of these results will be discussed within the public section of these comments.

The cost associated with the SLC includes the non-traffic-sensitive portion of the loop and switch. The loop is the facility that connects each customer to a wire center. It includes the network interface device, copper and fiber cables, poles, and conduits. The non-traffic-sensitive switch cost, or the line port, includes the main distribution and the line card. Moreover, because the SLC is an interstate rate, SLC associated costs are only the interstate jurisdictional portion of the loop and line port costs.

The Synthesis Model does not directly calculate SLC costs. Instead, the model generates unseparated costs for each wire center. The model identifies costs related to loop, line port, end office usage, signaling, transport, and billing. To transform model outputs into SLC related costs, it is first necessary to allocate per-line common costs among the various cost baskets. Second, it is necessary to separate the costs by jurisdiction.

Per line common costs are identified in the Synthesis Model as common support services expenses. They include corporate operations expenses, customer service expenses, and plant non-specific expenses. These are expenses that are reported in ARMIS accounts 6510, 6530, 6610, 6620, 6710 and 6720. The model estimate of these costs is \$7.32 per line per month.<sup>102</sup> The model assigns all per line charges to the network interface device (NID), and through this assignment includes all per line charges in the loop basket. This practice creates biased results. The reported loop costs are too high, while the reported switch and transport costs are too low. The

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<sup>99</sup> The Synthesis Model can also be run by density level. However, due to a lack of data, one to one mapping of density levels into UNE zones for the four study areas is not possible at this time.

<sup>100</sup> USAC Quarterly Administrative Filing, 2<sup>nd</sup> QTR 2001, Appendix HC 8 [http://www.fcc.gov/ccb/universal\\_service/quarter.htm#2001](http://www.fcc.gov/ccb/universal_service/quarter.htm#2001)

<sup>101</sup> Id., Appendices HC1 and HC8.

<sup>102</sup> For a discussion of these estimates, see the Inputs Order, Paragraphs 382-407.

existence of this bias does not affect the universal service results because the universal service program relies on the total wire center results. The too high loop result is offset by the too low switch and transport results. However, when cost of loop and port functions are reviewed separately, this bias cannot be ignored.

To correct for this bias in our analysis, per line common costs are allocated among the loop, switch, and transport baskets on the basis of relative investment in these functions. The relative investment in these baskets was determined for each study area. Multiplying the per line common cost by the relative investment determines the per line common cost for each basket. In addition, because the model assigns 30 percent of switch investment to line port and 70 percent to end office usage, we assign only 30 per cent of the switch per line costs to the line port. Allocation of these costs according to relative investment mimics the allocation of corporate operations expense in the universal service algorithm and the Part 69 allocation of marketing prior to the re-assignment of marketing expenses.<sup>103</sup>

The relevant separations factors are the gross allocator for loop plant and the dial equipment minutes (DEM) factor for the switch port.<sup>104</sup> The interstate gross allocator is 25 percent for all study areas. The interstate DEM factor varies by study area. The national average interstate DEM is approximately 15 percent and for the 80 carriers analyzed the interstate DEM factor varies from 7.57 to 27.43 percent.<sup>105</sup> The product of multiplying the sum of the loop plus the loop allocated per line common costs by the gross allocator is the interstate loop cost. The product of multiplying the sum of the port and the port allocated per line common costs by the DEM factor is the interstate port cost. It is this interstate wire center loop and line port cost, adjusted to properly reflect reasonable per line costs, that is the building block for determining zone and study area forward-looking economic costs that should be recovered by the SLC and will be referred to as the SLC economic cost.

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<sup>103</sup> Letter from John Ricker, NECA, to Magalie Roman Salas, FCC, dated October 1, 2001, tab 3, Loop Cost and Expense Adjustment Algorithms and 47 C.F.R. Section 69.403.

<sup>104</sup> The rule adopted in the CALLS order applies a 25 percent factor to both loop and port to determine the Zone Average Revenue per line-(Part 61.3(z)). It is our understanding that the 25 percent factor applied in that rule was adopted for administrative convenience, and does not affect the separation factors or the study area costs.

<sup>105</sup> For trends in the national average see The Universal Service Monitoring Report, CC Docket No. 98-202, Prepared by the Federal and State Staff for the Federal-State Joint Board on Universal Service in CC Docket No. 96-45, Table 8.3 Dial Equipment Minutes. The study area specific factor is available in Armis, 43-04, row 1213.

## **5.2 The NASUCA Model Results Indicate that Forward-Looking SLC Costs are under \$5 for about Three-Quarters of Residential and Single-Line Business Customers, and Therefore that the SLC Cap Should not be Increased**

The major finding of estimating SLC costs using the Synthesis Model is that 75% of residential and single-line business customers are located in UNE zones that have forward-looking SLC costs of less than \$5.00 (See Table 3). This finding, along with the TELRIC cost estimates, is the foundation for NASUCA's recommendation that the SLC caps should not be increased. These customers are already paying for the economic cost of providing service to them. Increasing the caps in those zones will increase the implicit subsidy provided by residential and single-line customers. The increase in the implicit subsidy occurs when rates increase to recover the allowed CMT revenue per line by any amount that exceeds the economic cost of service.

When the allowed CMT revenue per line is above \$5.00, the rate will increase to the lesser of allowed CMT revenue per line or the new cap.<sup>106</sup> However, the allowed CMT revenue is a legacy calculation. It does not even represent the embedded (or sometimes called actual) loop cost.<sup>107</sup> It is the sum of price cap allowed common line revenues plus the remaining Transport Interconnection Charge (TIC) subsidy, and interstate marketing costs.<sup>108</sup> Currently, an implicit subsidy is being paid in zones where the forward-looking cost is below \$5.00. If the cap is increased, then in the zones where the forward-looking cost is below \$5.00 and the allowed CMT revenues per line is greater than \$5.00, implicit subsidy payments will increase. Because it is a goal of the Telecommunications Act of 1996, and of the FCC, to eliminate implicit subsidies as much as possible, we recommend that the FCC find it unreasonable to increase the SLC cap at this time.<sup>109</sup>

These findings also support NASUCA's recommendation that the SLC cap should not increase for any residential or single-line customer. The 80 study areas examined can be divided into four groups. The first group, containing 55 study areas, can be defined as carriers with UNE zones and having at least one zone with an SLC cost of less than \$5.00. If the SLC in the zone with a cost greater than \$5.00 is allowed to increase without simultaneously decreasing the rate in the zone(s) with a cost less than \$5.00, then the FCC would be allowing carriers to garnish funds from residential and single-line business customers through an inefficient rate structure.

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<sup>106</sup> 47 C.F.R. Section 69.152(d)(1)

<sup>107</sup> Verizon Cost Submission, Access Charge Reform, CC Docket No. 96-262, filed November 16, 2001, Page 4.

<sup>108</sup> Marketing expenses associated with special access and inter-exchange services are not included in the CMT revenue basket. Section 69.156.

<sup>109</sup> See the Telecommunication Act of 1996, Section 254(e). The word "should" in this section of the act has been interpreted to mean a recommended course of action rather than a mandate, United States Court of Appeals, Tenth Circuit, QWEST v. FCC, No. 99-9546, rel. July 31, 2001.

The second group of carriers, containing 14 study areas, has not established UNE zones. These carriers are thwarting the development of competition by maintaining higher than necessary UNE rates in urban areas. The increase in the SLC cap will provide revenue to decrease multi-line business presubscribed interexchange carrier charges (PICCs). The high PICC, however, provides a rate level that the competitors can match. In doing so, the competitor obtains revenue that partially offsets the high UNE rate. Reducing the PICC in the presence of high UNE rates destroys the profit margin of potential competitors. Given the goal of advancing competition, it is not reasonable to allow these carriers to increase SLC caps, unless and until they de-average their zones. Of course, at that time, they would probably have one zone with SLC costs below \$5.00 and thus, it still would not be reasonable to allow this group to increase their SLC caps.

The third group of carriers, containing, seven study areas, have multiple zones and no zone cost below \$5.00. These carriers generally serve low-density areas. Moreover, they all receive interstate access support. In addition, their interstate rate of returns for the year 2000 ranged from 12.2 percent to 40.03 percent. While at first blush it might appear reasonable to allow these carriers to increase their SLC caps, it does not appear to be necessary in light of their service territories, interstate support receipts, and healthy financial positions. The final group of carriers, containing four study areas, has UNE zones that cut across wire centers boundaries. Thus, the model is not able to develop zone costs for these carriers. However, given that zone 1 for these carriers is their most urban region, it is very likely that zone 1 would have forward-looking costs of less than \$5.00, and thus, it would not be reasonable to allow the SLC cap to increase rates in the rural zones of these carriers.

Finally, the model results prove that residential and single-line business customers pay more in SLC rates than the SLC cost of service. Far from being a subsidized class, these customers contribute more than their fair share to the support of the carriers' cost and profits. ***In zones where the SLC rate is greater than the SLC cost, residential and single-line business customers provide the carrier with more than \$1.113 billion in excess revenue. In zones where the rate is less than cost, SLC revenue is less than cost by approximately \$472 million. Combining these two values we conclude that the Subscriber Line Charge paid by residential and single-line business customers generates a net contribution of \$641 million (See Section 5.3.3).*** In addition, the combination of \$472 million residential and single-line business support requirement with a multi-line business support requirement of approximately \$6 million implies that the current interstate access support cap of \$650 million is more than sufficient to meet the needs of carriers.

### **5.3 The NASUCA Model Results Demonstrate that Residential and Single-Line Business Customers are Contributing to the Support of the Network, and Do not Receive a Subsidy**

We have chosen to present six model runs that highlight the important assumptions that are built into the model and that have been debated by the parties in many proceedings either before the Commission or in state proceedings. First, we review the results of the default run of the model. The default run contains all of the assumptions that the FCC uses to develop the state average and wire center cost of service for the purposes of calculating the forward-looking model universal service support, but for one exception. The one exception being that we have allocated the common costs to all network facilities rather than assign the cost exclusively to the loop.

Second, we correct the model so that the structure that is shared between distribution and feeder networks is not double counted. Currently the Synthesis Model first builds a distribution network and second builds a feeder network. If the feeder and distribution cable follow the same right-of-way, the model will build two sets of poles in the right-of-way, one for the distribution cable, and a second for the feeder cable. In the feeder/distribution structure-sharing scenario, we adjust the model results to eliminate this double counting.

Third, we estimate a scenario that excludes the traffic-sensitive loop plant from the calculation of SLC costs. The feeder portion of the loop is traffic-sensitive in those areas served by fiber fed digital line carrier systems. These facilities are traffic-sensitive because the amount of installed capacity is determined by the peak-hour minutes-of-use. Customers are no longer provided with a dedicated facility or electronic path to the central office.

The last three scenarios change values of inputs that have received a good deal of attention in the discussion of models. In the fourth scenario, we raise the cost of capital to 13.18 percent. In the fifth scenario, we reduce the projected lives of major investment categories, thereby increasing depreciation expenses. In the last scenario, we reduce the maximum copper loop length from 18k ft to 12k ft.<sup>110</sup>

As seen in Table 3 below, the results are not overly sensitive to the choice of scenarios. The NASUCA Model results look at six alternative scenarios. The SLC costs are below \$5 for at least 65% of customers in all scenarios, and nearly 2/3 of all customers have SLC costs between \$3.50-\$5.00. Table 4 also shows that average SLC costs do not vary dramatically across scenarios.

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<sup>110</sup> Under Scenarios 4, 5, and 6 only one assumption is changed in each scenario – e.g., Scenarios 5 and 6 do not incorporate the assumption under Scenario 4 that the cost of capital is 13.18%.

**Table 3 -- Percentage Distribution of SLC Costs per Line for Six Scenarios**

<b>SLC Cost Per Line</b>	<b>Default Scenario</b>	<b>Feeder Distribution Structure Sharing Scenario</b>	<b>Non-Traffic-Sensitive Loop Scenario</b>	<b>Cost of Capital Scenario</b>	<b>Depreciation Scenario</b>	<b>12k ft Scenario</b>
Less than \$3.50	9.3	11.4	16.8	1.8	8.4	8.4
\$3.50 to \$5.00	65.1	64.7	60.2	63.1	60.0	62.6
\$5.00 to \$6.00	9.1	7.9	11.0	12.1	14.3	11.9
\$6.00 to \$6.50	3.3	4.6	2.8	6.0	1.3	1.6
\$6.50 to \$9.20	11.1	9.4	7.6	12.2	12.5	13.3
\$9.20 to \$15.00	1.9	2.0	1.6	4.2	3.0	2.0
Above \$15.00	0.2	0.1	0.0	0.7	0.5	0.2

**Table 4 -- Average SLC Costs and Net Contributions for the Six Scenarios**

<b>Item</b>	<b>Default Scenario</b>	<b>Feeder Distribution Structure Sharing Scenario</b>	<b>Non-Traffic-Sensitive Loop Scenario</b>	<b>Cost of Capital Scenario</b>	<b>Depreciation Scenario</b>	<b>12k ft Scenario</b>
Average SLC Cost	\$4.75	\$4.64	\$4.40	\$5.28	\$5.00	\$4.89
Net Contribution with a \$5.00 SLC	\$193 million	\$335 million	\$641 million	-\$478 million	-\$121 million	\$5 million
Net Contribution with a \$6.50 SLC	\$1,371 million	\$1,515 million	\$1,813 million	\$700 million	\$1,057 million	\$1,186 million

### 5.3.1 Default Scenario

The Default Scenario is the basic starting point of our analysis. This scenario incorporates the inputs used by the FCC when it determined year 2001 forward-looking model support. Accordingly, it uses the December 1999 wire center line counts that were filed with the Universal Service Administrator on July 31, 2000. The results files were generated by the Turbo-Pascal version of the model that had been previously posted on the Accounting Policy Division web page.<sup>111</sup> That version of the model also contained 1998 ARMIS information for minutes-of-use and general support facilities

<sup>111</sup> The current version of the Turbo-Pascal model posted on the Accounting Policy Division web-site contains updated ARMIS information. However, this version was not available until after we had started to analyze significant amounts of data and therefore we did not adopt it in this exercise. The web page also contains a Delphi version of the model, which the Commission has not adopted at this time.

investments.<sup>112</sup> FCC-approved inputs values for all inputs contained in the HCPM inputs file and the Hatfield Model Default Scenario are retained.<sup>113</sup>

The average SLC cost is \$4.75 per residential and single-line business customer. This amount is below the current SLC cap, and is below the SLC charged by most carriers. The distribution of residential and single-line business customers by SLC is shown below. The lines were divided into groups at SLC cost levels that are relevant for this proceeding. For example, the first group shows the number of lines with cost below the previous SLC cap of \$3.50. The second group shows the number of lines with cost between the old cap of \$3.50 and the current cap of \$5.00. The next two groups show the number of lines between the possible SLC cap increase levels of \$6.00 and \$6.50. The fifth group measures the number of lines that are between the proposed residential SLC cap of \$6.50 and the multi-line business cap of \$9.20. The final two groups separate the lines that have costs above the multi-line business cap into those lines with high SLC costs (from \$9.20-\$15.00 per line), and those with very high SLC costs (above \$15 per line).

Table 5 and Figure 1 below highlight the fact that approximately two-thirds of the customers are within the \$3.50 to \$5.00 band. Another nine percent of customers are in the band below \$3.50. Combining these bands means that 74 percent of the customers are located in UNE zones that have an SLC cost of service less than \$5.00 per month. Increasing the SLC cap to \$6.50 will reduce the support for another 12.4 percent of the customers. However, it will generate a huge windfall from the 74 percent of the residential and single-line customers with costs of less than \$5.00. That is, the carriers will receive \$1,790 million in implicit subsidies, while high cost areas will need \$419 million in support.<sup>114</sup> The difference, \$1,371 million, allows carriers to decrease their multi-line business rates by charging exorbitant rates to residential and single-business customers.

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<sup>112</sup> The same version of the model will be used for all six scenarios.

<sup>113</sup> See Inputs Order, Appendices A, B, C, and D.

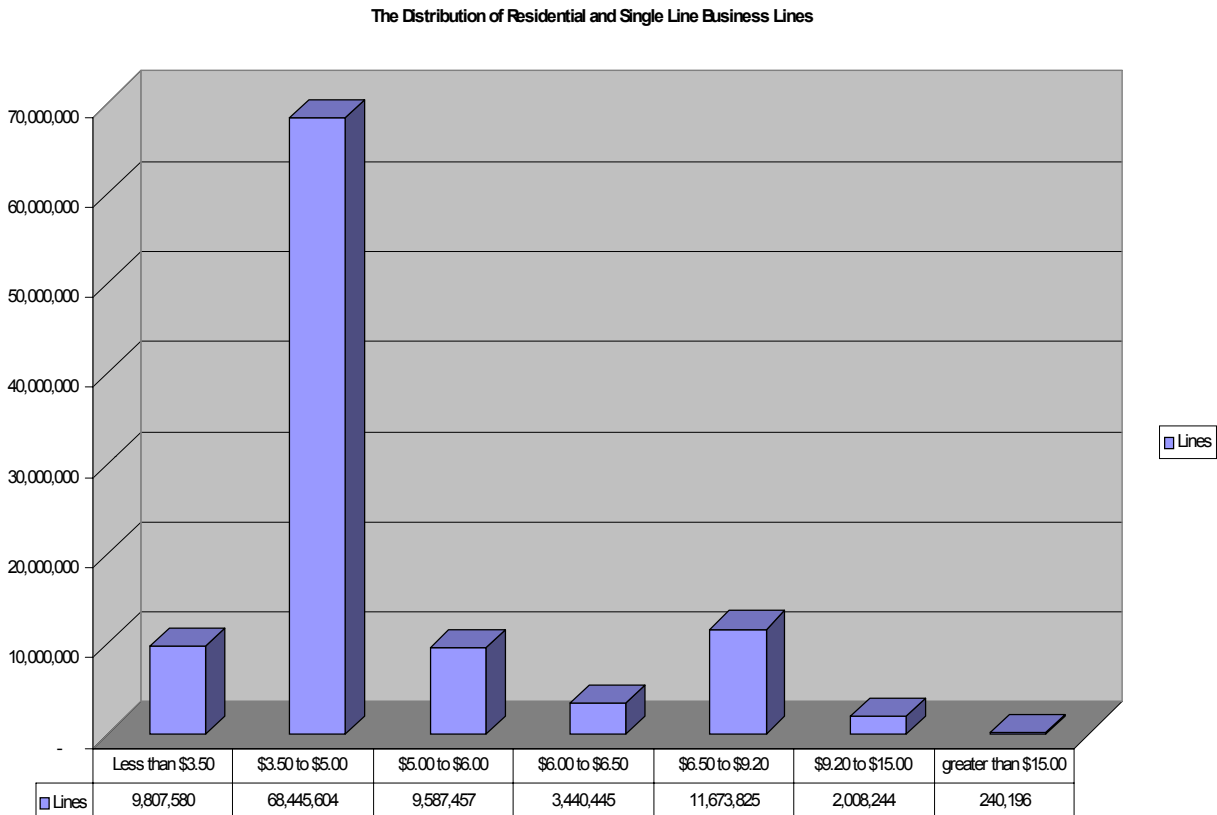
<sup>114</sup> Implicit subsidies paid by residential and single-line business customers are calculated as the difference between the SLC revenue and the economic cost of service.

**Table 5 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the Default Scenario**

<b>SLC Cost Per Line</b>	<b>Number of Lines</b>	<b>Percentage Share</b>
Less than \$3.50	9,807,580	9.3
\$3.50 to \$5.00	68,445,604	65.1
\$5.00 to \$6.00	9,587,457	9.1
\$6.00 to \$6.50	3,440,445	3.3
\$6.50 to \$9.20	11,673,825	11.1
\$9.20 to \$15.00	2,008,244	1.9
Greater than \$15.00	240,196	0.2



Figure 1 – Distribution of Residential and Single-Line Business Lines



The net current contribution received by carriers from residential and single-line business customers is \$193 million annually. The contribution is calculated by the summing the contribution generated in each UNE zone. The UNE zone contribution is the difference between the residential and single-line business SLC and the UNE SLC cost.<sup>115</sup> The SLC is assumed to be \$5.00 in every zone with the exception of six carriers with SLCs less than \$5.00. In those cases, the actual SLC rather than the \$5.00 SLC was used.<sup>116</sup> A positive net contribution means that the residential and single-line business customers are providing a net contribution to the carriers. They are not being subsidized, rather they are making a payment that exceeds the economic cost of production. Or stated differently, the Commission's current pricing rules require residential and single-line business customers to provide an implicit subsidy to other services and to the ILECs' profits.

### 5.3.2 Feeder/Distribution Structure Sharing Scenario

The Synthesis Model creates a separate feeder and distribution network. The feeder network is optimally designed given the locations of the serving area interfaces and wire centers. The distribution network is optimally designed given the location of customers. However, the model does not allow the two networks to share structure, where structure includes poles, conduits, and trenches. The existence of the dual networks is acceptable for the purposes of determining universal service support because the support is a function of difference between each carrier's cost and the national average cost. The dual network will increase the cost of each carrier and the national average, and will not necessarily bias a carrier's relative cost position. In that case, the dual network will not affect the amount of support each carrier receives. However, when cost is compared to an absolute level, such as an SLC cap, the dual networks, by raising the cost of service, distort the comparison between the forward-looking cost and the SLC cap. Therefore, in this proceeding, it is necessary to determine a method to remove the dual network from the model cost estimation process.

AT&T pointed out this problem to the Staff of the Common Carrier Bureau in two *ex parte* presentations. First, AT&T demonstrated the problem through a graphical display. Separate feeder and distribution networks were compared to a combined network. In one wire center, AT&T demonstrated that almost all of the feeder cable could ride on the distribution structure.<sup>117</sup> Second, AT&T demonstrated the potential impact of the dual networks by presenting a comparison of the route miles estimated by the Synthesis

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<sup>115</sup> Individual zone contributions are listed in the proprietary tables. These tables will be filed in a separate proprietary filing. Appendix C – The Determination of Residential and Single-Line Business Customers Net Contribution and Average SLC Costs. This is proprietary information being provided only to the FCC in six tables -- one table per scenario as described in Section 5.3.

<sup>116</sup> The six carriers are Pacbell at \$4.41, Ameritech-Illinois at \$4.47, Rochester NY at \$4.69, Sprint Nevada at \$4.03, Southwestern Bell-OK at \$4.72, and Verizon-DC at \$3.81 (See Table 1).

<sup>117</sup> Letter from Richard N. Clarke AT&T, to Magalie Roman Salas, FCC dated February 16, 2000

Model for BellSouth Florida with the route miles estimated by BSTLM for the same study area. BSTLM is the model used by BellSouth in various state proceedings. AT&T noted that the Synthesis Model estimate for route miles was 89,771 miles while the BSTLM route mile estimate was 44,851 miles. AT&T also showed that the BSTLM could separate the total distance into the route miles that serve only the distribution network, served only the feeder network and are shared by both networks.<sup>118</sup>

Based on the AT&T *ex parte* presentations we developed an algorithm to share the structure in all study areas. We assigned half of the shared structure to feeder, and half to distribution. Noting that the Synthesis Model would report the shared structure as feeder and distribution structure, we summed the Florida stand-alone distribution route miles with the shared route miles, and the Florida stand-alone feeder route miles with the shared route miles. We calculated the ratio of stand-alone route miles plus  $\frac{1}{2}$  of the shared route miles divided by the stand-alone route miles plus the entire shared route miles for both distribution and feeder. These ratios are 93.22% for distribution and 62.8% for feeder.<sup>119</sup> These ratios represent the percentage of reported Synthesis Model route miles that a feeder/distribution structure-sharing model will estimate.

To develop estimates of the SLC cost based on the structure sharing ratios, these ratios were applied to the model results files by multiplying the feeder structure investment by the feeder ratio and the distribution structure investment by the distribution ratio. The model recalculates the wire center costs using the lower levels of investment, and the new wire center costs are transformed into SLC costs using the methodology for generating SLC costs described above.

The average SLC cost is \$4.64 per residential and single-line business customer. This average is 2.3 percent less than the average in the Default Scenario. In general, the distribution of lines slides into lower brackets in comparison to the Default Scenario. A total of 76 percent of the lines have forward-looking SLC costs that are less than \$5.00. Another 13 percent of the lines have SLC costs of between \$5.00 and \$6.50, and only 11 percent of the lines have SLC costs greater than \$6.50. Raising the cap generates significantly more implicit subsidies than it reduces in support requirements. The implicit subsidies increase to \$1,881 million, while the support becomes \$366 million, yielding net implicit subsidies of \$1,515 million. Net contribution from residential and single-line business customers, calculated using the \$5.00 SLC cap, is \$335 million.

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<sup>118</sup> Letter from Michael R. Lieberman AT&T, to Magalie Roman Salas, FCC dated October 4, 2000

<sup>119</sup> For BellSouth Florida, stand-alone distribution route miles were reported as 37,048 miles, stand-alone feeder route miles were 2,000 miles and shared miles were 5,802 miles. The distribution ratio is 39,949 divided by 42,850 and the feeder ratio is 4,901 divided by 7,802. See Letter from Michael R. Lieberman AT&T, to Magalie Roman Salas, FCC, dated October 4, 2000.

**Table 6 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the Feeder/Distribution Structure Sharing Scenario**

SLC Cost Per Line	Number of Lines	Percentage Share
Less than \$3.50	11,953,483	11.4
\$3.50 to \$5.00	68,016,956	64.7
\$5.00 to \$6.00	8,299,807	7.9
\$6.00 to \$6.50	4,822,781	4.6
\$6.50 to \$9.20	9,861,884	9.4
\$9.20 to \$15.00	2,096,954	2.0
Greater than \$15.00	151,486	0.1

### 5.3.3 Non-Traffic-Sensitive Loop Scenario

The Non-Traffic-Sensitive Scenario calculates the costs that should be used to determine if an increase to the SLC cap is warranted. It calculates the costs that are dedicated to the end-user and do not vary with usage. This scenario is based on a reasonable starting position, the Feeder/Distribution Structure Sharing Scenario. The Non-Traffic-Sensitive Loop Scenario removes the traffic-sensitive components of the loop and estimates the cost of the remaining non-traffic-sensitive components. Traditionally, the entire loop had been considered non-traffic-sensitive. Each end-user was connected to the wire center by a dedicated twisted copper pair of wires. Even when T-carrier systems were introduced, the end-user had either a dedicated pair or a dedicated channel on the T-carrier system.

Thus, all of the facilities and equipment providing the loop service to the customer were dedicated to that customer. Neither the end-user's traffic pattern or his neighbors' traffic patterns determined the amount of loop services available to him. However, with the addition of loop electronics via digital loop carriers, the loop now contains traffic-sensitive components. These facilities are shared by many end-users. Each end-user is not provided with a dedicated path. Rather, the traffic is concentrated. "Typically, residential service can be concentrated at a 4:1 ratio...for business services the typical traffic concentration ratio is 3:1. The actual concentration ratio chosen for a given application is a function of the traffic load to be carried by the NGDLC (next generation digital loop carrier)."<sup>120</sup> That is, the facilities that provide paths between the switch and digital loop carrier device (the parts of the digital loop carrier device that communicate with the switch and the switch port) are part of a traffic-sensitive network. An end-user can experience blocking at the digital loop carrier because traffic from other end-users precluded his use of the loop facility. Moreover, this network does not provide all end-users with equal access to the switch. Instead, it provides business customers with more paths than residential customers.

<sup>120</sup> Direct Testimony of W. Keith Milner, BellSouth Telecommunications, Inc. Before the Alabama Public Service Commission, Docket No. 27821, November 8, 2000, at 6.

This network design has two important consequences. First, the costs associated with the traffic-sensitive portion of the loop should not be recovered through SLCs. As the Commission has often said “The Commission has long recognized that to the extent possible, interstate access costs should be recovered in the manner in which they are incurred. In particular, non-traffic-sensitive costs -- costs that do not vary with the amount of traffic carried over the facilities -- should be recovered through fixed flat charges, and traffic-sensitive cost should be recovered through per minute charges.”<sup>121</sup>

Accordingly, the cost associated with the traffic-sensitive components of the loop should be recovered through a per-minute charge. The SLC, a flat-rated charge, should recover the dedicated portion of the loop. When a digital loop carrier serves a customer, the non-traffic-sensitive components of the loop include the network interface device, the drop wire, the distribution cable, the serving area interface, and the line card at the digital loop carrier device. The digital loop carrier’s common equipment (the cabinet, power and environment equipment) should be allocated between the traffic-sensitive and non-traffic-sensitive services. The feeder and transmission portion of the digital loop carrier are the traffic-sensitive components of the loop.

Recently, the Commission has entertained the notion that many traffic-sensitive facilities are more sensitive to peak usage than to flat diurnal or monthly usage.<sup>122</sup> NASUCA argues that for peak capacity constrained facilities, peak period pricing mechanisms are preferred and required by the Act. If because of administrative difficulties with peak period pricing, such as peak shifting or the inability to determine the coincident peak, peak pricing cannot be implemented, then the Commission should use a per-minute charge to recover these costs. The facilities are still traffic-sensitive even if they are sensitive to peak usage. In such instances, it is inefficient to recover the cost of these facilities through a flat rate charge. In addition, the costs associated with these facilities should be recovered from their cost-causers, and not transferred to the Universal Service Fund. Transferring the recovery to the Universal Service Fund would result in increases to the alternative SLC, the universal service contribution. The universal service contribution is an alternative SLC because price cap carriers recover their universal service on a flat-rated basis. Thus, transferring the cost to the Universal Service Fund will also require the recovery of a traffic-sensitive cost on an inefficient flat-rated basis.

The second consequence is that business customers are provided a higher quality of service than residential customers. This quality difference supports the retention of a higher SLC for multi-line business customers.

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<sup>121</sup> In the Matter of the Multi-Association Group (MAG) Plan for Regulation of Interstate Services for Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers, Second Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 00-256, released November 8, 2001, FCC 01-304, Paragraph 17; 12 FCC Rcd at 15992-93 Paragraph 24.

<sup>122</sup> In the Matter of Developing a Unified Inter-carrier Compensation Regime, CC Docket No. 01-92, Notice of Proposed Rulemaking, rel. April 27, 2001, Paragraphs 109-111.

A Commission decision to recover feeder and digital loop carrier costs on a traffic-sensitive basis would be consistent with the forward-looking costing practices already implemented in the United Kingdom and Germany. In those countries, traffic-sensitive costs are called the conveyance costs, and non-traffic-sensitive costs are called access costs.<sup>123</sup> In both countries, the feeder that connects the digital loop carrier and transmission portion of the digital loop carrier are recovered as part of the interconnection tariff associated with conveyance costs.

To run the Non-Traffic-Sensitive Scenario, the traffic-sensitive portions of the loop have to be removed from the computation. With regard to feeder plant, because the model uses fiber feeder solely for the purpose of connecting digital loop carrier devices to wire centers, removing the traffic-sensitive loop components requires eliminating all fiber feeder cable and associated structure costs.

In the case of digital loop carriers, it is necessary to determine the transmission portion of the cost of these facilities. The model does not directly provide an investment cost related to the transmission portion of the digital loop carriers. Instead, the model combines a fixed cost and a per-line cost to determine the total cost of the digital loop carrier. The fixed cost includes both the transmission costs and the common costs of the carrier. In addition, the relative amount of fixed and per-line costs varies with the size of the digital loop carrier and its utilization. Estimates based on a sample of 1000 digital loop carriers reveal that 68% of the carrier cost is fixed, and 32% of the cost is per-line related. For purposes of determining SLC costs, we assumed that 30 percent of the total cost (less than half of the fixed cost) of the digital loop carrier is traffic-sensitive.

To implement these assumptions, the Synthesis Model result files from the Feeder/Distribution Structure Sharing Scenario were recomputed with the fiber, cable, and structure investments set at zero, and digital loop carrier investment reduced by 30 percent. The model generates the recomputed wire center costs. These costs are then transformed into SLC costs following the procedures outlined above.

Under this scenario, the average SLC cost is \$4.40 per residential and single-line business customer. Seventy-seven percent of residential and single-line customer are located in UNE zones that have SLC costs of less than \$5.00. At the \$5.00 cap, end-users with SLC costs below \$5.00 are already providing carriers with an implicit subsidy of \$1.113 billion. End-users with SLC costs above \$5.00 are receiving \$472 million in support. The support received can be implicit from other ratepayers or explicit from the interstate access support mechanism. Increasing the SLC cap to \$6.50 will increase implicit subsidies \$2,065 million, which will be provided by residential and single-line business customers. This amount will come from end-users in zones where the forward-looking cost is less than the allowed CMT revenue per line.

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<sup>123</sup> Analytical Cost Model: National Core Network, **Consultative Document 2.0**, Prepared by Wissenschaftliches Institut für Kommunikationsdienste, GmbH (WIK) for the Regulatory Authority for Telecommunications and Posts, June 30, 2000; Long Run Incremental Costs: The Bottom-Up Network Model, OFTEL, March 1997, Version 2.2, at 2).

At the same time, support for end-users with SLC costs above \$5.00 will decrease \$252 million. Clearly, a program of increasing the SLC cap that dramatically increases the level of implicit subsidies is inconsistent with the Telecommunications Act's mandate to implement universal service such that "such support should be explicit."<sup>124</sup> In addition, it contradicts the Commission's policy that "interstate access costs should be recovered in the manner in which they are incurred."<sup>125</sup> An SLC cap of \$6.00 will place 80 million customers at risk of paying a rate that is greater than the cost incurred in providing service. If the cap is increased to \$6.50, an additional 11.5 million end-users will face this risk.

**Table 7 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the Non-Traffic-Sensitive Scenario**

<b>SLC Cost Per Line</b>	<b>Number of Lines</b>	<b>Percentage Share</b>
Less than \$3.50	17,629,860	16.8%
\$3.50 to \$5.00	63,371,922	60.2%
\$5.00 to \$6.00	11,564,772	11.0%
\$6.00 to \$6.50	2,914,251	2.8%
\$6.50 to \$9.20	8,033,008	7.6%
\$9.20 to \$15.00	1,646,788	1.6%
Greater than \$15.00	42,750	0.0%

### 5.3.4 Cost of Capital Scenario

In the three previous scenarios, the cost of capital was set at 11.25 percent, the current authorized rate-of-return. This is the value that was approved by the Commission for the purpose of determining universal service support. The Commission left open the door that this rate could change if the Commission was to adopt a different rate of return in its prescription proceeding.<sup>126</sup> The Commission has recently terminated the prescription proceeding without changing the rate of return.<sup>127</sup> In their cost filings, several carriers adopted the 11.25 percent return for the purposes of determining SLC costs.<sup>128</sup> Verizon, however, uses a rate of return that could be higher than the 11.25% return.

<sup>124</sup> Telecommunications Act of 1996, Section 254 (e).

<sup>125</sup> Mag Order, Paragraph 17.

<sup>126</sup> Inputs Order, Paragraphs 432, 435.

<sup>127</sup> Mag Order, Paragraph 208.

<sup>128</sup> SBC cost submission, Page 5; BellSouth cost submission, Page 4.

The purpose of this scenario is to provide the Commission with evidence that estimates the potential impact of using a higher rate of return to determine SLC costs. NASUCA does not support the use of the higher rate of return. We are only providing this information to illustrate the impact of using a value greater than 11.25%, as Verizon has likely done.

In the model, the rate of return transforms the investments into annual payments. It is analogous to the interest rate in a mortgage payment. In the mortgage payment, the interest rate transforms the investment, the price paid for the house, into a monthly payment. A higher cost of capital will increase the SLC cost just as a higher interest rate will increase the mortgage payment.

In particular, we have substituted from a Verizon-Maine UNE study the company's proposed cost of equity, cost of debt, and debt fraction. The Maine cost of equity was 14.91 percent, the cost of debt was 7.63 percent, and the debt fraction was 23.77 percent.<sup>129</sup> These values translate into a cost of capital of 13.18 percent. The model recomputed the wire center costs using this higher cost of capital and the wire center costs were transformed into SLC costs.

The average SLC cost is \$5.28 per residential and single-line business customer. Sixty-four percent of residential and single-line customers are located in UNE zones that have SLC costs of less than \$5.00. At the \$5.00 cap, the net contribution from residential and single-line business end-users is -\$478 million. Therefore, it appears that these end-users receive a net subsidy flow. However, increasing the SLC cap will reverse the subsidy flow causing the residential and single-line business customers to subsidize other customers. However when the SLC cap increases to \$6.50, the net contribution is \$700m. The reason for the turnaround in the subsidy is because there are still 68 million end-users, sixty-four percent of the total residential and single-line business customers, who are located in UNE zones that have costs below \$5.00. These customers will be required to provide implicit subsidies to other customers and the ILECs if the cap is increased.

**Table 8 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the Cost of Capital Scenario**

SLC Cost Per Line	Number of Lines	Percentage Share
Less than \$3.50	1,842,173	1.8%
\$3.50 to \$5.00	66,361,987	63.1%
\$5.00 to \$6.00	12,742,439	12.1%
\$6.00 to \$6.50	6,279,901	6.0%
\$6.50 to \$9.20	12,813,183	12.2%
\$9.20 to \$15.00	4,448,045	4.2%
Greater than \$15.00	715,623	0.7%

<sup>129</sup> Stanley Baker, Testimony on behalf of Verizon-Maine, Attachment E, Maine Docket no. 96-781.



### 5.3.5 Depreciation Scenario

The purpose of calculating the Depreciation Scenario is to estimate the impact of alternative depreciation expense rates. These rates are determined by the economic life and future net salvage percentage assigned to each investment category. Longer lives and higher salvage values decrease the depreciation expense rate. The model multiplies the investment times the depreciation expense rate to determine annual depreciation expenses.

The economic lives and future net salvage percentages contained in the Default Scenario are the weighted average Commission authorized lives and percentages. In adopting these lives for use in the Universal Service proceeding, the Commission noted that these

“depreciation lives are not only estimates of the physical lives of assets, but also reflect the impact of technological obsolescence and forecasts of equipment replacement. We believe that this process of combining statistical analysis of historical information with forecasts of equipment replacement generates forward-looking projected lives that are reasonable estimates of economic lives and, therefore, are appropriate measures of depreciation.”<sup>130</sup>

The Commission also noted that the increase in the depreciation reserve-ratio, due to the fact that average prescribed depreciation is approximately 7 percent when retirements are approximately 4 percent, implies the prescribed lives are shorter than engineered lives of these assets.<sup>131</sup>

In a recent study, the Commission staff found that actual depreciation reserves are greater than the theoretical reserves. The actual reserves were 53 percent of the plant cost, and the theoretical reserves were 49% of plant cost. This relationship, actual reserves being greater than theoretical reserves, existed for all major carriers.<sup>132</sup> In such instances, the authorized rates have been more than adequate in allowing the carriers to depreciate their plant.

Even though the Commission has found the authorized depreciation lives to be forward-looking and its staff reports show the depreciation reserves are more than adequate, carriers continue to advocate for even shorter lives.<sup>133</sup> In this scenario,<sup>134</sup> we

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<sup>130</sup> Inputs Order, Paragraph 426.

<sup>131</sup> Id., Paragraph 427

<sup>132</sup> Accounting Safeguards Division, Common Carrier Bureau, Report on Depreciation Reserve Analysis for 2001, September 2001.

implemented the economic lives and future net salvage percentages proposed by Verizon-Maine.<sup>135</sup> We insert them into the Hatfield Model module of the Synthesis Model and compute the wire center cost. Finally the wire center cost is transformed into an SLC cost.

The average SLC cost is \$5.00 per residential and single-line business customer. Sixty-eight percent of residential and single-line customer are located in UNE zones that have SLC costs of less than \$5.00. The largest group of end-users is in the \$3.50 to \$5.00 range. There are 63 million lines in this range, representing 60% of all residential and single-line business lines. Increasing the SLC cap generates a net subsidy of \$1,057 million from residential and single-line business customers.

**Table 9 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the Depreciation Scenario**

SLC Cost Per Line	Number of Lines	Percentage Share
Less than \$3.50	8,851,423	8.4%
\$3.50 to \$5.00	63,156,985	60.0%
\$5.00 to \$6.00	14,993,885	14.3%
\$6.00 to \$6.50	1,400,340	1.3%
\$6.50 to \$9.20	13,177,470	12.5%
\$9.20 to \$15.00	3,129,431	3.0%
Greater than \$15.00	493,817	0.5%

### 5.3.6 12k ft Scenario

The quality of voice service is determined, in part, by the characteristics of the copper loop. Two important characteristics of the loop that affect loop quality are the loop length, and the width or gauge of the loop. For any gauge, resistance and decibel loss increase with increases in the length of the copper loop; and for any length, resistance and decibel loss increase with decreases in the diameter of the copper (increases in the gauge).

In the Universal Service proceeding, there was an extensive discussion regarding loop quality and how decisions about quality affect the design of the network. Parties debated whether the Commission should adopt a maximum loop length of 12 thousand feet (12k ft) or 18 thousand feet (18k ft).<sup>136</sup> The Commission adopted the 18k ft

<sup>133</sup> See Maine Docket No. 96-781, Alabama Docket No.27821, and Florida Docket No. 990649-TP.

<sup>134</sup> NASUCA does not support the use of the reduced service lives. We are only providing this information to illustrate the impact of using higher depreciation rates.

<sup>135</sup> Verizon Testimony, Attachment E.

<sup>136</sup> See the Inputs Order, Paragraphs 67-70.

standard. It stated that “the record supports the finding that a platform that uses 18,000 foot loop-lengths will support at appropriate quality levels the services eligible for universal service support.”<sup>137</sup> The service quality adopted for universal service is voice grade service, where bandwidth for voice grade service should be at a minimum, 300 to 3000 Hertz.<sup>138</sup> The use of the 18k ft standard is consistent with the costing procedures established for this proceeding: “For this proceeding, the price cap [local exchange carriers (LECs)] have agreed to provide...forward-looking cost information associated with the provision of retail voice grade access to the public switched telephone network.”<sup>139</sup>

The incremental cost models submitted by the carriers in this proceeding reverted back to the 12k ft standard.<sup>140</sup> This standard was first developed as part of the Carrier Serving Area (CSA) design.<sup>141</sup> The boundaries of the CSA are based on resistance limits of 900 ohms for the distribution plant beyond the remote terminal. These limits equate to 9,000 feet of 26-gauge cable and 12,000 feet of 19, 22, or 24-gauge cable including bridged taps.<sup>142</sup> The CSA design was developed to provide digital data services such as computer to computer communications, high-speed facsimile, information storage, and retrieval from remote databases; not voice grade services.<sup>143</sup>

Even though we recommend that the Commission retain the 18k ft standard because that standard meets the requirement of providing voice grade service, we are providing results from a 12k ft model run. To perform this run, it was necessary to re-cluster all of the PNR customer data in clusters that are limited to distances of less than 12k ft. In addition, the maximum copper length input was set at 12k ft in the HCPM user input file. After making these adjustments, the model was run for all 80 price-cap non-rural carriers. The wire center costs were then transformed into SLC costs.

The average SLC cost is \$4.89 per residential and single-line business customer. Finally, as in all other cases, the potential increase in implicit subsidies associated with an increase in the SLC cap is significantly greater than the potential reduction in support payments to end-users now protected by the cap. An increase in the in the cap to \$6.50

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<sup>137</sup> Id., Paragraph 70.

<sup>138</sup> In the Matter of the Federal-State Joint Board on Universal Service. Fourth Order on Reconsideration, CC Docket No. 96-45, rel. December 30, 1997, Paragraph 16.

<sup>139</sup> See CALLS Order, 15 FCC Rcd at 12994, Paragraph 83.

<sup>140</sup> SBC cost submission, Attachment A, Page 15. Also, whenever a carrier relies on its own engineering guidelines, it implies the use of 12 k ft standard embedded in the Carrier Serving Area Design. BellSouth cost submission, Page 2.

<sup>141</sup> A more extensive discussion of the CSA standard can be found at Section 8.

<sup>142</sup> Lucent Technologies, Outside Plant Systems, October 1996, Page 13-1.

<sup>143</sup> T.P. Byrne et. al., “Positioning the Subscriber Loop Network for Digital Services,” The International Symposium on Subscriber Loops and Services Proceedings, September 20-24, 1982.

will generate a net contribution of \$1,186 million from residential and single-line business customers.

**Table 10 -- Distribution of Residential and Single-Line Business Lines by SLC Cost for the 12k ft Scenario**

<b>SLC Cost Per Line</b>	<b>Number of Lines</b>	<b>Percentage Share</b>
Less than \$3.50	8,851,423	8.4%
\$3.50 to \$5.00	65,876,022	62.6%
\$5.00 to \$6.00	12,499,055	11.9%
\$6.00 to \$6.50	1,685,016	1.6%
\$6.50 to \$9.20	13,952,428	13.3%
\$9.20 to \$15.00	2,099,211	2.0%
Greater than \$15.00	240,196	0.2%

## **6 Shared Costs: The Commission's Cost Allocation Rules do not Properly Assign Costs between Services Included and Excluded from the Definition of Universal Service**

The six scenarios provided above illustrate that there is no economic basis for raising the Subscriber Line Charge. Residential and single-line customers are already paying an SLC that exceeds the economic cost of production. A further increase in the SLC would only exacerbate the level of implicit subsidy provided by these customers.

The level of implicit subsidy identified in the scenarios is understated because of the Commission's current accounting rules. In this section, we address how the Commission's rules fail to provide the accounting safeguards that Congress ordered the Commission to establish in §254(K) of the Act. Costs are currently misallocated to residential and single-line business subscribers; consequently those subscribers are being compelled to subsidize non-supported services.

Over five years ago, the 1996 Telecommunications Act removed many of the restrictions barring LECs from offering competitive and non-traditional telecommunications services. The FCC said at that point that "virtually all incumbent local exchange carriers' outside plant is dedicated and assigned to regulated activities by direct assignment,"<sup>144</sup> the FCC recognized that it had to address "how to allocate common costs between the non-regulated offerings that will be introduced by incumbent local exchange carriers and the regulated services they already offer (because) our current cost allocation rules were not designed for this task."<sup>145</sup>

<sup>144</sup> Notice of Proposed Rulemaking, In The Matter Of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112 FCC No. 96-214, Adopted May 10, 1996; Released: May 10, 1996. ("Video Notice") at ¶18

<sup>145</sup> *Id.*, at ¶2.

Furthermore, the FCC was quick to point out that the local loop presented the greatest problem:

“For the non-regulated offerings contemplated in this proceeding, loop plant presents the greatest problem. Direct assignment is generally not available because loops capable of providing both regulated and non-regulated services generate common costs. Because loop plant is primarily traffic insensitive, the usage-based allocation process prescribed by our Part 64 rules does not result in cost-causative allocations.”<sup>146</sup>

It is clear from the FCC’s words that its cost allocation rules are now antiquated, fail to reflect the way in which telecommunications plant is utilized, and do not “ensure that telephone subscribers are not forced to pay for the non-regulated offerings of the incumbent local exchange carriers.”<sup>147</sup>

Therefore, it would be irresponsible for the FCC to go forward with the scheduled increase to the SLC cap based upon its current cost allocation rules and the evidence presented in this proceeding.

### **6.1 The FCC has Recognized in the Past that its Cost Allocation Rules are not Well-Suited for Allocating Joint and Common Costs Among Regulated and Non-Regulated Services**

In 1996, the FCC correctly recognized that its cost allocation rules did not properly allocate common costs between regulated and non-regulated services offered over shared facilities.<sup>148</sup> The FCC noted that loop presented the greatest allocation problem because loop facilities generate significant common costs that are primarily traffic insensitive, and therefore, “the usage-based allocation process prescribed by our Part 64 rules does not result in cost-causative allocations.”<sup>149</sup>

More than five years after the fact, this problem still exists. The cost studies filed by CALLS members in this proceeding allocate 100% of loop costs to voice services even though this common facility is currently shared among voice and data services, and prospectively with video programming. In light of the shortcomings of the Commission’s accounting procedures, the Commission must recognize that the loop cost estimates

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<sup>146</sup> Id., at ¶ 19.

<sup>147</sup> Id., at ¶ 22.

<sup>148</sup> Notice of Proposed Rulemaking In The Matter Of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112 FCC No. 96-214, Adopted May 10, 1996; Released: May 10, 1996. (“Video Notice”).

<sup>149</sup> Video Notice at ¶ 19.

generated by HCPM are biased upward for the purposes of establishing the allocated cost of voice access.

## **6.2 Basic Exchange Service Should not be Used to Cross-Subsidize Deregulated and Non-supported Services such as Data Services Since this Violates the Telecommunications Act of 1996**

It is illegal to recover the full cost of the loop allocated to the interstate jurisdiction through a Subscriber Line Charge. Currently the SLC is bundled with the price of basic exchange service, a product that is not competitive.<sup>150</sup> Section 254(k) of the 96 Act endorsed the Commission's long-standing policy that non-competitive services should not be used to subsidize competitive products or non-supported services. In this section we show that the CALLS allocation of 100% of the cost of the loop to the SLC not only violates Commission policy, but also that the Commission's current accounting safeguards, as recognized by the FCC, do not provide protection to the captive ratepayers.

Section 254(k) explicitly states that carriers

“...may not use services that are not competitive to subsidize services that are subject to competition.” And that the Commission, “...with respect to interstate services... shall establish any necessary cost allocation rules, accounting safeguards, and guidelines to ensure that services included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services.”

This “reasonable share” requirement of Section 254(k) codifies the long-standing telecommunications doctrine that, when the same network supports several classes of service, one class of service must not bear the full cost of administering and maintaining the network. While in the past this doctrine has been applied more to allocation of costs between intrastate and interstate telecommunications services, it applies equally well to services, such as data, video, and other advanced services. Concerning these services, the FCC has relied on a series of accounting safeguards to protect against any cross-subsidization of non-regulated services by regulated services.

## **6.3 The FCC's Approach to Video Dialtone Service Properly Guarded against Cross-Subsidization of Competitive Services by Non-Competitive Ones, and the Same Principles Should be Applied to the Provision of Advanced Data Services**

The FCC's position to ensure proper safeguards against cross-subsidization of competitive services by non-competitive ones was most clearly articulated during its various deliberations concerning the provision of video dialtone. The treatment of video

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<sup>150</sup> In all jurisdictions in the country, local service can be disconnected if the SLC is not paid.

dialtone provides an interesting parallel that is useful for guiding the FCC in today's modernization efforts for providing advanced data services.

In the early 1990s, telephone companies envisioned reconstructing their networks so that they could provide video, voice, and data services. The telephone companies made some significant progress in their effort to provide video services, as illustrated by SNET's construction of a hybrid fiber-coaxial network. Today, the telephone companies are focused on upgrading their networks to provide data and voice together, and in the not too distant future, video.

From the beginning the FCC clearly conceived of video dialtone as a means of facilitating the provision of additional non-programming services involving voice, video, and data, and recognized that the "joint provision of these services, enhanced competition and diversity of services, and incentives to improve the network infrastructure were in the public interest."<sup>151</sup>

The FCC was and is therefore confronted with the need to address the recovery of direct and joint costs associated with providing Plain Old Telephone Service (POTS) and non-POTS on the same platform. When the telephone companies built their video platforms, the FCC addressed the issue of how to allocate costs between voice and video. The FCC also recognized that safeguards were necessary to ensure that, among other things, there was no cross-subsidization of video dialtone services by basic exchange customers and put into place safeguards requiring "...a separate accounting of costs so that shareholders and not ratepayers would bear the burden of failure."<sup>152</sup>

#### **6.4 Based on the Experience of Video Dialtone Service, Careful and Consistent Application of Accounting Rules and Principles Should Ensure that Cross-Subsidies Do not Occur**

The Commission applied cost allocation and separate accounting rules to price cap regulated companies because the price caps by themselves did not provide adequate protection to POTS. The FCC concluded in its Video Dialtone Reconsideration Order that "...the basic video dialtone offerings of LECs would be subject to the existing price

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<sup>151</sup> Second Report And Order, Recommendation To Congress, And Second Further Notice Of Proposed Rulemaking, In The Matter Of Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54 - 63.58, CC Docket No. 87-266, FCC 92-327, Released August 14, 1992, Adopted July 16, 1992, at ¶125. (Footnotes excluded)

<sup>152</sup> Order And Authorization, In the Matter of the Applications of Ameritech Operating Companies For Authority pursuant to Section 214 of the Communications Act of 1934, as Amended, to Construct, Operate, Own, and Maintain Advanced Fiber Optic Facilities and Equipment to Provide Video Dialtone service within Geographically Defined Areas in Illinois, Indiana, Michigan, Ohio, and Wisconsin, FCC 94-340, Adopted December 23, 1994, Released January 4, 1995, at ¶40.

cap rules”.<sup>153</sup> In reaching this conclusion, the FCC decided that video dialtone constituted a new service under the price cap rules because it adds to the range of options available to customers. Consistent with the Commission’s new services rules, LECs were obligated to “...craft their video dialtone rates to cover the ‘direct costs’ associated with providing the service.”<sup>154</sup>

The accounting system for video dialtone service had to identify shared costs, suggesting that the Commission intended to address how shared costs should be allocated between video and voice. By establishing a system of accounts that identify shared costs, the Commission implicitly recognized that it was unacceptable to have video pay only its direct costs. As we will show below, the Commission subsequently proposed an explicit sharing of shared costs, and imposed the following conditions on Ameritech in granting its request to provide video dialtone service:

“We require Ameritech to account for all costs associated with its video dialtone service in accordance with Part 32. In order to ensure that these costs are not borne by ratepayers of regulated services, and consistent with the requirements established in the VDT Recon Order, we condition this authorization on a requirement that Ameritech segregate all costs incurred in providing video dialtone service into two sets of subsidiary accounting records. We require Ameritech to create a set of subsidiary accounting records that identify all revenues, investment, and expenses wholly dedicated to video dialtone, and another set of records that capture any revenues, investment, and expenses that are shared between video dialtone and the provision of other services. These subsidiary accounting records shall include the direct costs and overheads associated with video dialtone service. To ensure that these costs are not borne by ratepayers of other regulated services, we require Ameritech to segregate all costs incurred in providing video dialtone service into subsidiary accounting records and to assign these costs to the video dialtone service. Consistent with the requirements of the VDT Recon Order, if these costs are not recovered from future video dialtone services, they must be borne by shareholders rather than the ratepayers of other regulated services.”<sup>155</sup>

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<sup>153</sup> Second Report And Order And Third Further Notice Of Proposed Rulemaking, In the Matter of Price Cap Performance Review for Local Exchange Carriers; Treatment of Video Dialtone Services Under Price Cap Regulation, CC Docket No. 94-1, FCC 95-394, Adopted: September 14, 1995, Released: September 21, 1995, at ¶4.

<sup>154</sup> Id.

<sup>155</sup> Id., at ¶57.



## **6.5 The Commission was Consistent Throughout the Development of its Policy on Video Dialtone Service that Joint and Common Costs Should be Shared Among the Services Provided, and that Regulated Services should not Subsidize Unregulated Ones**

On November 7, 1994, the Commission issued the Video Dialtone Reconsideration Order ("VDT Recon Order"). In that Order, the Commission set forth accounting and reporting requirements for LECs that offer video dialtone service, and these requirements were reaffirmed in the basic video dialtone framework adopted in the Second Report and Order in 1995. The Commission required carriers offering video dialtone to establish two sets of subsidiary accounting records: one to capture the investment, expense, and revenue wholly dedicated to video dialtone; the other to capture the investment, expense, and revenue shared between video dialtone and other services.<sup>156</sup> Wholly dedicated refers to investment, expense, and revenue related exclusively to providing video dialtone service, while shared refers to investment, expense, and revenue related to providing video dialtone and other services on a joint or common basis.<sup>157</sup>

This Order went on to specify that "...direct costs include costs associated with the primary plant investment that is used to provide the service."<sup>158</sup> And acknowledged "...the direct costs of video dialtone will include incremental costs that are associated with shared plant used to provide video dialtone and other services."<sup>159</sup> Because of this the Commission stated that it expected

"...LECs to include as part of direct costs, a reasonable allocation of other costs that are associated with shared plant used to provide video dialtone and other services; and costs in accounts other than primary plant accounts that are reasonably identifiable as incremental costs of video dialtone service"<sup>160</sup> as well "... a reasonable allocation of overheads."<sup>161</sup>

On April 3, 1995, the FCC released RAO Letter 25 -- Accounting and Reporting Requirements for Video Dialtone Service. This letter provided guidance on video dialtone accounting to local exchange carriers ("LECs") that had received Section 214 authorizations to provide video dialtone service. It also set forth specific guidance on

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<sup>156</sup> Federal Communications Commission, Video Dialtone Reconsideration Order, November 7, 1994, at Paragraph 173.

<sup>157</sup> By "other services" we mean telephone and other services provided by LECs.

<sup>158</sup> Second Order, at Footnote No. 8 (Referencing Video Dialtone Reconsideration Order, 10 FCC Rcd at 345-346).

<sup>159</sup> Id.

<sup>160</sup> Id.

<sup>161</sup> Id.

the requirements for accounting classifications, subsidiary records, and amendments to cost allocation manuals ("CAMs") for LECs that provide video dialtone service.

The letter required "...LECs to maintain in subsidiary records, by USOA accounts, all wholly dedicated and shared investment, expense, and revenue related to providing video dialtone service".<sup>162</sup> The letter went on to find that "...LECs must separately track both wholly dedicated and shared video dialtone investment. This requirement covers both new investment purchased for the provision of video dialtone and existing plant converted to video dialtone use."

Moreover, it merits emphasis that the rules applied to both new and existing investments, reflecting the fact that the FCC did not assume that because the investment already existed, it was fair to recover 100% of its cost from POTS. Rather it concluded that once the equipment was shared, regardless of the date of installation, the costs should be split between video and voice services.

To track net investment, subsidiary records must identify, for each plant account, all accumulated depreciation, amortization and deferred income taxes associated with wholly dedicated and shared video dialtone investment."<sup>163</sup> The FCC also required separate subsidiary records for dedicated and shared video dialtone expenses. Carriers also had to separately identify depreciation and amortization expense associated with wholly dedicated and shared video dialtone investment by each Part 32 plant account.<sup>164</sup>

LECs were also required to revise their Cost Allocation Manuals to:

"...include a statement indicating whether non-regulated video dialtone service is provided through a stand-alone video dialtone system, or a system shared with telephony. Carriers must also establish a new subsection in Section II of their CAMs that identifies all costs incurred in the planning and development of non-regulated activities provided in conjunction with video dialtone service."<sup>165</sup>

The Chief of the Common Carrier Bureau later issued a Memorandum Opinion and Order adopting the reporting requirements and accounting guidelines contained in RAO Letter 25.<sup>166</sup>

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<sup>162</sup> RAO Letter 25, Re: Accounting and Reporting Requirements for Video Dialtone Service, Federal Communications Commission, DA 95-7, Adopted: March 31, 1995, Released April 3, 1995, at 3.

<sup>163</sup> *Id.*, at 4.

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*, at 6.

<sup>166</sup> Memorandum Opinion and Order, By the Chief of the Common Carrier Bureau, Before the Federal Communications Commission, In the Matter of Reporting Requirements on Video Dialtone Costs and

The FCC eventually revoked both: “(1) the Common Carrier Bureau's Memorandum Opinion and Order adopting subsidiary accounting and reporting requirements for video dialtone; and (2) Responsible Accounting Officer Letter 25 (“RAO Letter 25”)...”<sup>167</sup> as a result of the implementation of Section 302 of the Telecommunications Act of 1996. However, in that same Order the FCC also sought comments on “...on what steps local exchange carriers should be required to take prior to certification with respect to establishing cost allocation procedures between regulated and unregulated services under Part 64 of the Commission's rules.”<sup>168</sup>

#### **6.6 The Commission Should Determine A Fixed Factor for Allocating Joint and Common Costs Among Services Provided by the Loop Since the Practice of Apportioning 100% of the Costs on Interstate Loop Recovery to the Subscriber Line Charge under the CALLS Order is Inconsistent with the Commission’s Experience in Allocation of Joint Costs for Video Dialtone**

The FCC should follow up on its consideration of a fixed allocation factor that would split the cost of loop plant equally between regulated and non-regulated activities. The FCC supported the concept of a fixed factor because it “has the advantage of simplicity, and would eliminate the need for usage projections and measurements as well as subsequent reallocations to adjust for inaccurate projections.”<sup>169</sup> The FCC also found that a fixed allocation would ensure just and reasonable rates<sup>170</sup> that do not result in the cross subsidization of competitive services by services that are not subject to competition.<sup>171</sup>

Because the FCC also felt that a cost causative allocation was not likely to achieve a reasonable degree of accuracy for jointly used facilities it was determined that the allocation should “...be based on other considerations such as demand or public policy considerations.”<sup>172</sup>

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Jurisdictional Separations for Local Exchange Carriers Offering Video Dialtone Services, DA 95-2036 and AAD No. 95-59, Adopted: September 29, 1995; Released: September 29, 1995, at ¶7.

<sup>167</sup> Report And Order And Notice Of Proposed Rulemaking, In the Matter of Implementation of Section 302 of the Telecommunications Act of 1996, Open Video Systems, and Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54-63.58, CS Docket No. 96-46 and CC Docket No. 87-266 (Terminated), FCC 96-99, Adopted: March 11, 1996; Released: March 11, 1996, at ¶75.

<sup>168</sup> Id., at ¶70.

<sup>169</sup> Video Notice at ¶39.

<sup>170</sup> Id., at ¶22.

<sup>171</sup> Id.

<sup>172</sup> Id., at ¶41.

In their comments on this issue the ILECs' suggestions as to the appropriate fixed factor for the allocation of loop plant common costs ranged from the 25-30% range proposed by Bell Atlantic, up to a factor of 50% proposed by the Southern New England Telephone Company.<sup>173</sup> Bell Atlantic's position is consistent with the view it adopted in the dialtone proceedings -- once the loop plant is used to provide another service other than voice service, it should be treated as a joint facility and not recovered in whole from one service.

In response to the NPRM on allocation of costs with provision of video service, some (e.g., Bell Atlantic) argued that pure price caps eliminate the need for cost allocation requirements as a safeguard against cross subsidies.<sup>174</sup> However, the FCC initiated that rulemaking procedure well aware that many of the ILECs were operating under price cap regulation. More importantly, Congress most certainly did not agree with Bell Atlantic -- price caps were in effect when it passed section 254(k).

Furthermore, in a later Report and Order, the FCC found that

"...our current system of interstate price cap regulation does not eliminate the need for cost allocation rules. Moreover, because these incumbent local exchange carriers' intrastate services may be subject to cost-of-service regulation or to a form of price cap regulation that involves potential sharing obligations or periodic earnings reviews, the incumbent local exchange carriers may still have an incentive to assign a disproportionate share of costs to regulated accounts."<sup>175</sup>

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<sup>173</sup> See Bell Atlantic Comments, In the Matter of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112, May 31, 1996, at 10 and Comments of the Southern New England Telephone Company, In the Matter of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112, May 31, 1996, at 12-13. It should be noted that in another video dialtone proceeding, Bell Atlantic's Witness, Dr. William E. Taylor, stated that: "Since the proposed network supports current and future services and lowers the cost of maintaining and provisioning current services, it would be economically incorrect to require that all costs of the upgraded network platform be recovered entirely from only one of the many new services that it will make available. Rather, the price of each service that uses the platform should be required to recover at least the incremental cost of the service and, together, revenue from all services that use the platform must recover the incremental cost of the platform. Just as multiproduct firms in competitive markets recover common costs from all of the services they supply in proportions that depend on market conditions for the different services, the common cost of the network platform should be recovered from all services that use the platform." (Reply of Bell Atlantic; Exhibit A—Affidavit of William E. Taylor, Ph.D., Before the Federal Communications Commission, In the Matter of The Bell Atlantic Telephone Companies Tariff FCC No. 10, Video Dialtone Service, Transmittal No. 741, March 6, 1995, at 3-4) (Emphasis in original).

It should also be noted that SNET proposed that this 50% allocation be applied to divide the joint and common costs of the loop equally between telephony and broadband services.

<sup>174</sup> See, for example, Bell Atlantic Comments, In the Matter of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112, May 31, 1996, at 1-6.

<sup>175</sup> Report and Order, In the Matter of Implementation of the Telecommunications Act of 1996: Accounting Safeguards Under the Telecommunications Act of 1996, CC Docket No. 96-150, FCC 96-490, Adopted: December 23, 1996, Released: December 24, 1996, at ¶271.

The FCC went on to note that, while future changes in the competitive conditions of the local telecommunications markets may require a re-examination of the continued need for the Part 64 cost allocation rules, those rules remain important to the Commission's efforts to ensure that rates for regulated services are just, reasonable, and non-discriminatory.<sup>176</sup> As has been recently pointed out by the Joint Board on Separations, the time for the FCC to reexamine these rules is now.<sup>177</sup>

This consistent reasoning demonstrates that the FCC fully recognizes the need to apportion loop costs among services, rather than impose 100% of them on the "services included in the definition of universal service."<sup>178</sup>

While Section 254(k) does not prescribe an exact figure or formula for the apportionment of costs between services supported by universal service and other non-supported services it does require some reasonable Commission assessment of the relative costs of providing those services and a rational apportionment of those costs.

This proposed method for apportionment of costs between those services supported by universal service and those not so supported is clearly more rational than that proposed by the CALLS Order, which imposed an increased end user SLC as the sole method of interstate loop cost recovery. This imposition of 100% of all interstate loop costs on one group of services cannot be deemed reasonable, or economically efficient, especially as technological advances continue to expand the variety of services that carriers can and do provide over the local loop. It is imperative that the FCC institute a more rational allocation of loop costs as the ILECs' engineer their networks more and more towards the next generation converged network offering "...a single network infrastructure for delivering integrated voice/data services."<sup>179</sup>

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<sup>176</sup> Id. It should also be noted that the FCC recognized that the portion of section 254(k) requiring "[t]he Commission, with respect to interstate services . . . [to] establish any necessary cost allocation rules, accounting safeguards, and guidelines to ensure that services included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services" was not addressed in the 96-150 Order. The FCC went on to state that this portion of 254(k) would be the subject of a separate rulemaking proceeding. (Id. at ¶275)

<sup>177</sup> "As competitive services emerge, it has become more difficult to ensure that non-competitive services are paying only a fair and reasonable share of common costs. Current jurisdictional separations procedures do not recognize the increase in competitive services, nor have separations procedures been adjusted in recognition of the safeguard requirements of the Act. Part 64, as applied, concentrates primarily upon expense accounts not investment accounts, and thus may not provide useful information to ensure compliance with § 254(k)." (Options for Separations; A Paper Prepared by the State Members of the Separations Joint Board, Approved December 17, 2001, at 6.)

<sup>178</sup> 47 U.S.C. § 254(k).

<sup>179</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request

The FCC recognizes that section 254(k) empowers it to prevent supported services from paying too much of the shared costs. According to the CALLS Order:

“It places a continuing obligation on the Commission to ensure that the treatment of joint and common costs, such as corporate overheads, prescribed by our accounting, cost allocation, separations, and access charge rules will safeguard the availability of universal service.”<sup>180</sup>

At the same time, the FCC recognizes that all costs are currently allocated to regulated operations when recovered through a Subscriber Line Charge as the sole method for interstate loop cost recovery, and yet it has done nothing to allocate any costs to a non-supported interstate service, such as DSL.

## **7 The Commission has Failed to Address Cost Allocation of Loops Used for Voice and Data Services**

The issue of shared costs discussed in the prior section was raised with the Commission in the CALLS proceeding. In the debates surrounding the CALLS Order, some parties argued that the new SLC charges being contemplated by the FCC violated the Line Sharing Order in that the FCC inappropriately assigned all the loop recovery costs to basic exchange service rather than allocating some of those costs to be recovered from those competitive services, such as xDSL, which share the loop.<sup>181</sup>

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for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/DSLf/DSL\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/DSLf/DSL_anywhere.pdf), at 7.

<sup>180</sup> In the Matter of Access Charge Reform (CC Docket No. 96-262), Price Cap Performance Review for Local Exchange Carriers (CC Docket No. 94-1), Low-Volume Long-Distance Users (CC Docket No. 99-249), and Federal-State Joint Board On Universal Service (CC Docket No. 96-45). Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45. Adopted: May 31, 2000, Released: May 31, 2000, Paragraph 96.

<sup>181</sup> In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Low-Volume Long Distance Users, Federal-State Joint Board on Universal Service, CC Docket Nos. 96-262 and 94-1, Sixth Report and Order, CC Docket No. 99-249, Report and Order, CC Docket No. 96-45, Eleventh Report and Order, 15 FCC Rcd. 12962, ¶¶ 96-98 (2000) (“CALLS Order”).

In rejecting this assertion the FCC stated "...[t]o date, we are not aware of any incumbent LECs that have allocated any loop costs to ADSL services".<sup>182</sup> In fact, however, many ILECs have decided that assigning a zero cost to the high-frequency unbundled network element (HUNE) is inappropriate. Their views are summarized in the following section.

### **7.1 Major ILECs Have Recently Interpreted Joint Cost Pricing to Require a Non-Zero Price for Advanced Telecommunications Services, and the ILECs' Cost Studies do not Reflect their View that a Portion of Loop Costs should be Assigned to Advanced Services when the Loop is Used for ADSL Service**

Within the last year, Qwest and SBC, two of the four Regional Bell Operating Companies (RBOCs) publicly stated that a non-zero price for voice and non-voice services should be used, and it appears that Verizon has also recently decided that a zero cost for the HUNE is inappropriate as well.<sup>183</sup> For example, Qwest Corporation in Arizona and Washington proposed a rate of \$5.00 per month per loop for use of the high-frequency portion of the loop (HFPL), in addition to a number of other nonrecurring and recurring charges associated with provisioning the line sharing service.<sup>184</sup> In support of this rate, Qwest argued that all of the costs associated with the unbundled loop are rendered "common costs" because of the presence of dedicated connections from a single customer to two different providers.<sup>185</sup> Drawing on the FCC's pricing principles, which Qwest asserted require a "reasonable allocation" of common costs, Qwest argued that a portion of the joint and common costs of the loop must be allocated to the HFPL and that the Company's proposed allocation of common costs between telephony and xDSL service was reasonable and consistent with the 1996 Act's requirement of just and reasonable rates.<sup>186</sup>

Qwest also contended that a zero price for the HFPL would distort competition and discourage investment in alternative methods of providing high-speed data services as it would give a competitive advantage to DSL providers over other high-speed data

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<sup>182</sup> Id. at ¶¶98.

<sup>183</sup> Before the Public Utilities Commission of the State of California, In the Matter of Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks and Investigation on the Commission's Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks, Rulemaking 93-04-003 and Investigation 93-04-002 (Interim Arbitration, Line Sharing Phase), Opening Brief Of Verizon California Inc., July 27, 2001.

<sup>184</sup> Before the Arizona Corporation Commission, Recommended Decision of Administrative Law Judge, Phase II Opinion and Order, In the Matter of the Investigation Into Qwest Corporation's Compliance with Certain Wholesale Pricing Requirements for Unbundled Network Elements and Resale Discounts, Docket No. T-00000A-00-0194, November 9, 2001, at 50.

<sup>185</sup> Id.

<sup>186</sup> Id.

service providers using technology such as cable modems or satellite.<sup>187</sup> Such an outcome, Qwest claims, would result in a “...decreased incentive to invest in new technologies or, for DSL providers, a disincentive to build their own facilities”.<sup>188</sup>

In California, Pac Bell (SBC) argued that because usage of xDSL technology enables a single copper loop to provide both dedicated voice and data service, either service, on its own, requires the loop. Therefore, on a shared line, these two services jointly cause the cost of the loop. This being the case, Pac Bell (SBC) argued further that allocation of loop costs to both the high- and low-frequency portion of the loop is appropriate according to the principles of cost causation.<sup>189</sup>

Furthermore, according to Pac Bell (SBC), this is an outcome required by the FCC’s own Orders and reasoning. Drawing on ¶694 of the FCC’s Local Competition First Report and Order, Pac Bell argued that costs, direct as well as joint and common, that are common to a subset of elements or services, such as data or voice, should be allocated to that subset. This being the case, Pac Bell (SBC) continued to argue, it is wholly appropriate to allocate a portion of the joint and common costs of a loop to the high-frequency portion of that loop.<sup>190</sup>

Pac Bell (SBC) also argued that a zero price for the HFPL would be contrary to sound economic reasoning, and the FCC’s own pricing principles, as it would result in an anti-competitive subsidy that would be harmful to competition.<sup>191</sup> As Pac Bell (SBC) points out, in a competitive market a product such as the HFPL is not given away for free, especially when to do so would preclude the use of that asset by its owner, as would be the case when a company other than Pac Bell (SBC) is provided access to the high-frequency portion of a loop owned by Pac Bell (SBC).<sup>192</sup> Given these circumstances, setting a zero price for the HFPL would, Pac Bell (SBC) asserts, be tantamount to a subsidization of the service offering of the company seeking access to the HFPL of a Pac Bell (SBC) owned loop – and this subsidization would be harmful to competition.<sup>193</sup>

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<sup>187</sup> Id. at 50-51.

<sup>188</sup> Id. at 51.

<sup>189</sup> Before the Public Utilities Commission of the State of California, In the Matter of Rulemaking on the Commission’s Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks and Investigation on the Commission’s Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks, Rulemaking 93-04-003 and Investigation 93-04-002 (Interim Arbitration, Line Sharing Phase), Opening Brief Of Pacific Bell Telephone Company (U 1001 C), July 27, 2001, at 3-4.

<sup>190</sup> Id., at 4-5.

<sup>191</sup> Id., at 6.

<sup>192</sup> Id.

<sup>193</sup> Id.



In this same California docket, Verizon also argued that there were direct costs related to the provisioning of the high-frequency portion of the loop. Verizon proposed to estimate those costs in a manner analogous to, but not as rigorous as, that employed by NASUCA in the analysis presented elsewhere in this paper. That is, Verizon proposed to:

“...estimate the costs for the HFPL by comparing the current cost of Verizon-CA’s loop network to that of a network built in a TELRIC study. The TELRIC study cost would capture the relevant costs and economies of scale of a network in which no copper loop exceeds 12k ft. A current cost calculation would provide a snapshot of the cost of Verizon-CA’s existing network, which includes many loops that are 100% copper with a length of 12-16k ft. The difference between these two cost measures would provide an estimate of the cost that Verizon-CA will incur as a result of its requirement to provide the HFPL over the longer copper loops in its existing network.”<sup>194</sup>

In Wisconsin, Ameritech (SBC) argued that 50% of unbundled loop price (plus any incremental facilities and operational costs caused by sharing the loop) is the appropriate monthly recurring price for the HFPL. Ameritech (SBC) argued that this price is fully consistent with the FCC’s TELRIC pricing principles under which “...the cost of a line-shared loop is a shared cost that must be reasonably allocated between the services that cause that cost.”<sup>195</sup> Furthermore, Ameritech (SBC) goes on to argue, a non-zero outcome for the HFPL price is also a logical outcome of the FCC’s ruling in its First Report and Order that UNE prices should include a reasonable share of forward-looking joint and common costs as well as the FCC’s ruling in its *Line Sharing Order* that price setting for the HUNE should adopt a reasonable method for dividing shared loop costs.<sup>196</sup> According to Ameritech (SBC), because the voice and the data service jointly cause the cost of the loop it is reasonable to divide that cost equally between the two services.<sup>197</sup>

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<sup>194</sup> Before the Public Utilities Commission of the State of California, In the Matter of Rulemaking on the Commission’s Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks and Investigation on the Commission’s Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks, Rulemaking 93-04-003 and Investigation 93-04-002 (Interim Arbitration, Line Sharing Phase), Opening Brief Of Verizon California Inc., July 27, 2001, at 6.

<sup>195</sup> Before the Public Service Commission of Wisconsin, In the Matter of Investigation into Ameritech Wisconsin’s Unbundled Network Elements, Docket No. 6720-TI-161, Ameritech Wisconsin Initial Brief, June 1, 2001, at 81. (Emphasis in original) It should be noted that the Wisconsin Public Service Commission has not yet issued its ruling in this Docket, but is expected to do so in the near future.

<sup>196</sup> *Id.*

<sup>197</sup> *Id.* at 82.

Ameritech (SBC) also argued that a zero price for the HFPL would distort the competitive market for advanced services; a result that Ameritech (SBC) stated would be “...contrary to both sound regulatory policy and the express dictates of Section 706 of the Act.”<sup>198</sup> Specifically, Ameritech (SBC) argued that a zero price for the HFPL would give a competitive advantage to DSL providers over other advanced services providers that use other technologies.<sup>199</sup> Simply put, Ameritech (SBC) stated, “...establishing a zero price for the monthly HFPL UNE charge will have a damaging impact on the otherwise beneficial development of alternative sources of broadband services, such as broadband wireless and cable modem services.”<sup>200</sup> What is more, the company went on to argue, such a price would discriminate against carriers that build their own facilities to provide service and would discourage continued investment in facilities by Ameritech (SBC).<sup>201</sup>

Finally, the ILEC view of the FCC’s Orders concerning the HFPL is neatly summarized by John Thorne, a Senior Vice President and Deputy General Counsel of Verizon. According to Mr. Thorne, it was the FCC that ordered ILECs to unbundle the high frequency portion of the loop, and to provide what has come to be called the HUNE very close to free, despite the fact that this unbundling required

“...the development of a host of new services, including loop “conditioning” services, loop quality information databases, and operations support systems to track and provision the new broadband UNE.”<sup>202</sup>

Mr. Thorne went on to argue that the FCC’s mandated price for the HUNE reflected neither the actual cost required to provide the channel, nor even the hypothetical TELRIC cost calculation for the provision of advanced services through the HUNE.<sup>203</sup> This pricing, according to Mr. Thorne, has made it easier and cheaper for a competitor to piggyback on an incumbent’s network permanently, instead of building its own network to serve its customers.<sup>204</sup> Mr. Thorne points out that this outcome is a huge

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<sup>198</sup> Id. at 86.

<sup>199</sup> Id. at 86-87.

<sup>200</sup> Id. at 87.

<sup>201</sup> Id. 89-92. Ameritech argues that an HFPL price of zero gives the Company “...little incentive to incur actually costs to innovate and invest in its network if it ultimately is required to turn over it facilities to competitors for free.”

<sup>202</sup> John Thorne, “The 1996 Telecom Act: What Went Wrong and Protecting the Broadband Buildout”, paper presented September 2001 at the Columbia University Conference entitled The Broadband Economy, at 32.

<sup>203</sup> Id.

<sup>204</sup> Id., at 25.

disincentive to the kind of risk-taking required for the infrastructure investments necessary to provide broadband service.<sup>205</sup>

This section has demonstrated that ILECs are advocating that a portion of the cost of the loop be allocated to advanced telecommunications services. In light of this information, NASUCA strongly urges the Commission to rethink its view that all costs should be allocated to voice services. No longer can the Commission contend that it was “not aware of any incumbent LECs that have allocated any loop costs to ADSL services.”<sup>206</sup>

## **7.2 Some State Regulatory Commissions have Interpreted Joint Cost Pricing to Require a non-Zero Price for Voice and non-Voice Services**

Although the FCC has established an ILEC’s obligation to provide access to the high-frequency spectrum UNE, it is the responsibility of the state commissions to determine the price of this UNE. When considering the pricing of the line sharing UNE there are three sections of the 1996 Telecommunications Act that are of particular interest.

Section 252(d)(1) of the Act requires that state commission determinations of the just and reasonable rate for interconnection and access to UNEs must be based on the cost of provisioning (determined without reference to a rate-of-return or other rate-based proceeding), must be nondiscriminatory, and may include a reasonable profit.

Section 254 of the Act addresses universal service issues. Subsection 254(k) states that a telecommunications carrier may not use services that are not competitive to subsidize services that are subject to competition. State commissions, with regard to intrastate services, must ensure that services that are included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services.

Section 706 of the Act requires each state commission to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans . . . by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.”

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<sup>205</sup> Id., at 26.

<sup>206</sup> CALLS Order at ¶¶98.

Since the issuance of the CALLS Order several local exchange carriers have asserted and their several State Regulatory Commissions have, in fact, concluded that allocating loop costs to the high-frequency portion of the loop, and the services provided thereon, was reasonable, and was a matter of sound economics, not to mention correct public policy. A number of State Regulatory Commissions have concluded that the cost of the loop should be recovered from all switched services.

For example, In Connecticut, SBC Communications Inc.'s affiliate, Southern New England Telephone Company (SBC/SNET), proposed a rate for the shared portion of the loop that equated to 50% of the rate for the xDSL capable loop.<sup>207</sup> In support of this rate, SNET argued that a reasonable rate calculation, taking into account the forward-looking cost of capital, depreciation, and a reasonable profit, is unlikely to be zero.<sup>208</sup>

Furthermore, SBC/SNET went on to argue, the FCC's Line Sharing Order explained, "...when a single loop facility is used to provide both Telco voice service and CLEC advanced services, the loop generates a cost that is shared by these two uses. Because a single loop is shared between providers and services, there is no economically unique way to establish the loop cost that each service causes. Since cost causation cannot be established between the high frequency portion of the loop (HFPL) and the voice portion of the loop, pricing of the two uses necessarily requires an allocation of the shared loop cost."<sup>209</sup> According to SBC/SNET, the allocation that makes the most sense, as mentioned above, is allocating 50% of the loop-related costs to the provision of xDSL service.

The Connecticut Department of Public Utility Control (CT DPUC) agreed with these arguments and found that:

"...the loop costs can be reasonably allocated among the services that use the loop. Obviously, the loop was constructed for more than basic local exchange service and cannot be considered the sole cost responsibility of basic local exchange service. New uses of the loop must be encouraged and should reasonably share in the cost of providing the loop."<sup>210</sup>

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<sup>207</sup> Before the State of Connecticut Department of Public Utility Control, Reply Brief of the Southern New England Telephone Company, In the Matter of Application Of The Southern New England Telephone Company For A Tariff To Introduce Unbundled Network Elements, Docket No. 00-05-06, November 28, 2000, at 3.

<sup>208</sup> *Id.*, at 4.

<sup>209</sup> *Id.*, at 10. HFPL here refers to the high-frequency portion of the loop that is used to provide the high-frequency spectrum UNE, the HUNE.

<sup>210</sup> See Application of the Southern New England Telephone Company for a Tariff to Introduce Unbundled Network Elements, Connecticut Department of Public Utility Control Docket No. 00-05-06, dated June 13, 2001 at Page 20.

The CT DPUC went on to find that an “...allocation of 50% of the local loop costs is reasonable for the high frequency portion of the loop”.<sup>211</sup>

Similarly, in Washington, Qwest Corporation argued that it believed that Section 254(k) of the Act requires that a reasonable allocation of the joint and common costs of the loop be made to the high-frequency portion of that loop in order to ensure that:

“...services which are included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services.”<sup>212</sup>

Qwest went on to emphasize that:

“The Commission can ensure consistency with this requirement by pricing the high frequency portion of the loop in such a way that it bears a reasonable share of the joint and common costs associated with the provision of that element. As discussed below, the entire loop is a joint cost of providing the two dedicated connections to allow line sharing. As such, failure to reasonably allocate a portion of that cost to the high frequency portion of the loop will result in other elements and services bearing a disproportionate share of those costs.”<sup>213</sup>

Qwest went on to argue that, according to the Eighth Circuit’s decision in *Iowa Utilities Board v. FCC*, No. 96-3321 (8th Cir. July 18, 2000), it is Qwest’s actual experiences in real central offices that provides the most reasonable benchmark for determining costs.<sup>214</sup> As Qwest pointed out:

“1) line sharing recasts the loop cost as a cost that is common to two dedicated connections on a shared line; and

2) the FCC established that the cost-based price of an unbundled network element should recover a reasonable portion of common costs.”<sup>215</sup>

Following up on this line of reasoning, Qwest proposed allocating 50% for the high frequency portion of the loop as being just and reasonable and consistent with the FCC’s pricing principles, which were designed to “...foster fair and equal competition

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<sup>211</sup> Id.

<sup>212</sup> Before the Washington Utilities and Transportation Commission, In the Matter of the Continued Costing and Pricing Of Unbundled Network Elements And Transport And Termination, Docket No. UT-003013 Part A, Opening Brief of Qwest Corporation, October 9, 2000, at ¶¶10-11.

<sup>213</sup> Id.

<sup>214</sup> Id., at ¶34.

<sup>215</sup> Id., at 41.

among providers and to foster technological innovation through investment in telecommunications facilities.”<sup>216</sup>

At the end of its investigation of this matter, the Washington Utilities and Transportation Commission concluded that adoption of a non-zero high-frequency spectrum UNE rate was necessary because:

“...the loop is used to provide both basic exchange and advanced telecommunications service, recovering the entire cost of the loop from voice services would violate Section 254(k) of the Act. Because the cost of the loop is considered to be a shared cost for the provision of voice and advanced services, we conclude that a portion of the cost of the loop should be recovered from LECs providing advanced services and specifically digital subscriber line services.”<sup>217</sup>

“Networks are increasingly being designed at this time to provide advanced telecommunication services. Due to the more stringent technical requirements of providing advanced telecommunications services, the incremental cost of these products is not zero. Therefore, we believe it is appropriate to recover a portion of the cost of the loop from LECs providing advanced telecommunication services.”<sup>218</sup>

In California, the Public Utilities Commission, in an interim decision that analyzed the issue in enlightening detail, also found that a zero cost for the HUNE was unreasonable for the following reasons:

1. Taking into account the forward-looking cost of capital and economic depreciation, including a reasonable profit, it is presumptively unreasonable to find a just, reasonable, and nondiscriminatory interim rate for use of the high frequency portion of the loop to be zero;
2. Taking into account a reasonable allocation of joint and common costs, in the interim, including forward-looking common costs, it is presumptively unreasonable to find a just, reasonable, and nondiscriminatory interim rate for use of the high frequency portion of the loop to be zero; and

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<sup>216</sup> Id., at ¶¶43-46.

<sup>217</sup> See In the Matter of the Continued Costing and Pricing of Unbundled Network Elements, Transport, and Termination, Thirteenth Supplemental Order - Phase A, WUTC Docket No. UT-003013, released January 2001, at Paragraph. 57.

<sup>218</sup> Id., at Paragraph 60.

3. "ILECs are now devoting billions of dollars to initiate broadband service capable of meeting all of their customers' needs for not only voice, but also data, and other products and services. Even if ILECs allocated no direct costs in years past when they established price floors for their ADSL retail services, this does not necessarily make zero a correct TELRIC calculation today for data transport over the local loop in the year 2000 and beyond. That is, it is not unreasonable that TELRIC for the loop calculated today based on a system designed to serve all of a customer's needs, including data as well as voice, might include some costs (e.g., capital, profit, economic depreciation, common, joint) for services other than voice. In fact, *if transport of data is the future of telecommunications, it may be that xDSL services on the high frequency portion of the local loop cause all future loop costs, and voice services cause none.*"<sup>219</sup>

To date, the HUNE rates set either by State Commission Order, or via an ILEC SGAT offering, range from a low of \$3.00 in California<sup>220</sup> to a high of \$13.70 in Montana.

We expect that more and more states will impose charges in the future as the technology for providing advanced data services expands. If State Commissions do not set reasonable and cost-based prices for the high-frequency spectrum UNE this will discourage competition, efficiency, and investment in the telecommunications infrastructure (as illustrated in the Section 7.6 discussion of the wireless and satellite carriers having to purchase spectrum for their data and video services).

### 7.3 A Few State Commissions Interpret the FCC's Order's as Mandating a Zero Price for the High-Frequency Portion of the Loop

There apparently is some confusion as to what the FCC's orders actually mandate, as a few state commissions have interpreted those orders as requiring them to establish a zero price for the HFPL. For example, the Texas State Commission, in an interim order, found that a zero rate for the HFPL would best address the FCC's concern regarding a

<sup>219</sup> Before the Public Utilities Commission of the State of California, In the Matter of Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks and Investigation on the Commission's Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks, Interim Opinion, Decision 00-09-074, Rulemaking No. 93-04-003 and Investigation No. 93-04-002 (Interim Arbitration, Line Sharing Phase) September 21, 2000, at 16-18 (emphasis added). The Commission is currently in the process of establishing final UNE and HUNE rates in this proceeding; Rulemaking No. 93-04-003 and Investigation No. 93-04-002 (Interim Arbitration, Line Sharing Phase).

<sup>220</sup> This \$3.00 monthly recurring charge for the high-frequency portion of the loop applies to Verizon. The CA PUC set monthly recurring charge for the high-frequency portion of the loop of \$5.85 for SBC (PacBell) of California.

potential price squeeze and would also be consistent with the general pro-competitive purpose underlying the TELRIC principles.<sup>221</sup>

The Minnesota Public Utility Commission (MNPUC) similarly interpreted the FCC's orders to mandate a zero price for the HFPL. In arriving at this decision the MNPUC took note of the fact that U S West, in documents filed with the FCC when it first offered retail DSL service, stated that because the cost of the loop is attributed to basic service there is no incremental cost of the loop attributable to the provision of DSL service. This being the case, the MNPUC argued, the MNPUC was legally obligated to set the HUNE price at zero in order to comply with the FCC's ruling that "...a LEC should provide line sharing to CLECs 'on the same terms and conditions (including pricing, processes and services) that it provides to itself.'"<sup>222</sup>

Regarding the FCC's pricing rules concerning the allocation of joint and common costs to the HFPL, the MNPUC believed that "[t]he FCC rejects the argument that its rules mandate allocating joint and common costs to the HUNE".<sup>223</sup>

Likewise the New York Public Utilities Commission found that because Bell Atlantic's cost studies for its retail Infospeed DSL offering included no allocation of loop costs, the Commission was obligated to approve a zero price for the HFPL.<sup>224</sup> Verizon, which proposed a zero loop rate for the HFPL, echoed this position, consistent with what it believed was demanded by the FCC's Line Sharing Order.<sup>225</sup> However, the Company reserved the right to revisit this issue if its cost studies were ever modified.<sup>226</sup>

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<sup>221</sup> Before the Public Utility Commission of Texas, In the Matter of Petition of IP Communications Corporation To Establish Expedited Public Utility Commission of Texas Oversight Concerning Line Sharing Issues and Petition of Covad Communications Company and Rhythms Links, Inc. Against Southwestern Bell Telephone Company and GTE Southwest Inc. for Post-Interconnection Dispute Resolution and Arbitration Under the Telecommunications Act Of 1996 Regarding Rates, Terms, Conditions and Related Arrangements For Line Sharing, Docket Nos. 22168 & 22469, Interim Award, June 2000, at 22.

<sup>222</sup> Before the Public Utility Commission of Minnesota, In the Matter of a Commission Initiated Investigation into U S WEST Communication, Inc.'s Costs Related to the Provision of Line Sharing Services, Docket N. P-5692, 5710, 5827, 5638, 5670,466,421/CI-99-1665, Order Setting Prices for Unbundled Network Elements, July 24, 2001, at 7.

<sup>223</sup> Id. at 11.

<sup>224</sup> Before the State of New York Public Service Commission, Proceeding on Motion of the Commission to Examine New York Telephone Company's Rates for Unbundled Network Elements, CASE 98-C-1357, OPINION NO. 00-07, Opinion And Order Concerning Line Sharing Rates, May 26, 2000, at 9.

<sup>225</sup> Id.

<sup>226</sup> Id. As was pointed out above, Verizon seems to have moderated its position as it has more recently found that there are, in fact, direct costs associated with the provision of xDSL service.



#### **7.4 Pricing Policy for the High-Frequency Spectrum UNE Should be Set in a Way to Prevent Price Squeezes**

A price squeeze occurs when an integrated firm with market power adjusts the margin between wholesale and retail prices in order to have a competitive advantage over its non-integrated competitors. ILECs (and CLECs) that provide voice services could conceivably use a price squeeze in the provision of advanced telecommunications services since loop costs can also be recovered from voice services. They can price advanced telecommunications services below competitors (e.g., providing cable modem, broadband) who do not also provide voice services.

Consequently, although we support a non-zero price for the high-frequency spectrum UNE, regulatory authorities must be careful not to set this price too high. Otherwise, companies that provide voice-services could have a competitive advantage over those that do not, since the latter cannot use voice-services to cross-subsidize non-voice services. As pointed out by the FCC, a price squeeze can be avoided if a CLEC provides both voice and data services.<sup>227</sup> For those carriers that only provide DSL service, a price squeeze can be avoided through imputation.

#### **7.5 A Non-Zero Price for the High-Frequency Portion of the Loop Need Not Result in a Price Squeeze**

The FCC and others have expressed their concern that a non-zero price for the high-frequency portion of the loop could result in a price squeeze, as the ILECs could set the retail rates for their own xDSL services below the sum of direct costs plus the HUNE charge it would not have to pay. For example, the Washington Utilities and Transport Commission found:

“Qwest’s MegaBit product retails at \$29.95 and that the direct costs of providing MegaBit are \$17.32. That leaves Qwest with a margin of \$12.63 with which to cover common costs and earn a profit. Assuming that a competing CLEC prices its comparable DSL product at \$29.95, and further assuming that the CLEC incurs the same direct costs as Qwest, if that CLEC is required to pay an additional \$9.08 (50% of Qwest’s non-deaveraged unbundled loop rate) for the HUNE, it will be left with \$3.55 to cover common costs before profit.”<sup>228</sup>

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<sup>227</sup> Before the Federal Communications Commission, In the Matter of GTE Tel. Operating Cos. GTOC Transmittal No. 1148, CC Docket No. 98-79, FCC 98-292, Memorandum Opinion and Order (rel. Oct. 30, 1998) (“GTE-DSL Order”) at ¶31 GTE-DSL Order at Paragraph. 31

<sup>228</sup> Before the Washington Utilities and Transportation Commission, In the Matter of the Continued Costing and Pricing of Unbundled Network Elements, Transport, Termination and Resale, Thirteenth Supplemental Order, Docket No. UT-003013 (Phase A) (W.U.T.C. January 31, 2001) (“WA Line Sharing Order”), at ¶52.

The threat of such a price squeeze, as the Washington Commission recognized, can be dealt with by the imposition of an imputation requirement. Thus, in Washington, Qwest proposed to avert a price squeeze by "...agreeing to price its MegaBit service higher than the sum of its direct costs plus an imputed amount for the HUNE".<sup>229</sup> The Washington Commission agreed with this suggestion and required Qwest to "...submit evidence to this Commission showing that any proposed changes to the retail price of its advanced telecommunications services pass an imputation test."<sup>230</sup>

As pointed out by Qwest, such an approach appeared to be supported by the FCC in its Line Sharing Order at footnote 326 where it noted that "... the Minnesota PUC held that it was 'not presently concerned with how [U S WEST] resolves the pricing issue, so long as the Company charges data CLECs the same loop rate that the Company presently *imputes* to its own DSL services.'" (Emphasis added)<sup>231</sup>

For these reasons, we believe that establishing a non-zero price need not result in a price-squeeze and therefore it is inappropriate to recover none of the cost of the loop from non-voice services.

## **7.6 Pricing Policy Should Promote Dynamic Efficiency in the Telecommunications Market**

The rate of technological change and innovation depend on market incentives. Provided that pricing policies are not overly restrictive and do not favor particular technologies or services, additional competition in telecommunications will stimulate the development of new technologies, and promote efficient investment. This will be the case for incumbents and CLECs alike.

The impact of pricing policies that do not charge for the high-frequency spectrum UNE are summarized as follows by Qwest:

"In telecommunications, CLECs are investing very little in loop facilities to residential customers and small business customers outside of the major business centers. Setting artificially low prices for high-frequency spectrum use could have a negative impact on the incentives for CLECs to construct their own facilities to serve these customers. Low prices for use of the high-frequency spectrum on loops could also have a chilling

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<sup>229</sup> Id. at ¶67.

<sup>230</sup> Id.

<sup>231</sup> Before the Washington Utilities and Transportation Commission, In the Matter of the Continued Costing and Pricing Of Unbundled Network Elements And Transport And Termination, Docket No. UT-003013 Part A, Opening Brief of Qwest Corporation, October 9, 2000, at ¶62.

effect on cable-based and wireless investments to provide high-speed Internet access in some geographic areas.

Like xDSL-based competitors, cable-based and wireless competitors are responding to the rising demand for high-speed access. A key difference is that these competitors are responding with facilities investments. High capacity access across the traditional landline network is in direct competition with cable modem and broadband wireless services, and this competition is expected to intensify. It is not difficult to see how the incentives to make cable-based facilities investments may be dampened in some geographic areas and customer segments if competitors can obtain high-frequency spectrum UNEs for a very low price.”<sup>232</sup>

Section 706 of the 1996 Telecommunications Act instructs commissions to “adopt policies that will promote advancement of advanced telecommunications services”. Establishing a zero price for advanced services fails to satisfy the goal of Section 706. This is because a zero price would not promote the use of advanced services UNEs on a competitively neutral basis, and would give xDSL providers a competitive advantage over other types of high-speed Internet access providers, such as satellite and cable companies, who must pay for the facilities they use to provide high speed data services. Moreover, a price of zero for the advanced services UNE might afford xDSL providers the opportunity to engage in precisely the type of price squeeze against competing technologies that the FCC feared the incumbent LECs could impose against the xDSL providers.

A zero price for advanced services also fails the goal of Section 706 because it reduces the incentive for all providers to invest in new infrastructure and new technology. Alternative providers of high-speed data services will have a reduced incentive to invest if they are competing against xDSL providers whose operations are in effect subsidized because they do not pay for their essential facility. Further, the xDSL providers themselves will have significantly reduced incentive to build their own facilities and to invest in alternative technologies if they can access the existing high frequency loop for free.

Clearly, because all of the various technologies and companies involved in the telecommunications sector compete in one way or another with each other, pricing policy has far-reaching implications beyond its immediate target. Impacts extend to xDSL providers, CLECs, cable modem, wireless, broadband services, and ILEC investment decisions. The overall rate of innovation will be slowed in advanced data services so long as the high-frequency spectrum is underpriced in a way that favors certain technologies and consumers.

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<sup>232</sup> Testimony of William L. Fitzsimmons, May 19, 2000. Before the Washington Utilities and Transportation Commission In the Matter of the Continued Costing and Pricing of Unbundled Network Elements and Transport and Termination (DOCKET NO. UT-003013).

Provision of non-voice services is more competitive than competition in voice services, which is very much dominated by ILECs. Therefore, increasing Subscriber Line Charges would disproportionately favor the ILECs who can use their integrated provision of voice and non-voice services to a competitive advantage by cross-subsidizing non-voice services. Only integrated companies, like ILECs, which provide voice and non-voice services, can use one service to cross-subsidize another. ILECs would be able to use increases in the Subscriber Line Charge, which would primarily be borne by voice-users, to recover expenses incurred in providing non-voice services.

## **8 Today's Public Switched Telephone Network (PSTN) Has Been Constructed for the Provision of Non-Voice Advanced Services, and the Subscriber Line Charge Pricing Policy of the Commission Needs to Reflect This Fact**

Throughout its history, the design of local exchange plant facilities has undergone successive transformations to meet the needs of premium communications services that utilize this plant in common with the provision of basic local exchange service.<sup>233</sup>

In today's world, the demand for non-voice services has become the driving force behind the evolution of the network into an integrated multiservice and multifaceted network capable of providing a variety of products such as voice, video, and data. A prime example of this trend is SBC's Project Pronto initiative -- an undertaking the Company intends as "...an important step in the company's migration to a converged voice, data, and video network, which ... dramatically increases the efficiency of the network and provides end-users with a powerful, single source for all of their communications needs."<sup>234</sup> As this type of network integration speeds up, the argument that the cost of the local loop is caused by a customer's decision to have basic telephone service, whether or not the customer purchases other services as well, is becoming increasingly untenable.

It has been argued that "[j]ust as a person must buy a car regardless of whether she drives to work every day or merely drives to church every Sunday, a customer who does not use the phone very often still needs the entire loop to have any service at all."<sup>235</sup> As the network is re-engineered to cater to the needs of advanced service users,

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<sup>233</sup> See, for example, Richard Gabel, "The Impact of Premium Telephone Services on the Technical Design, Operation and Cost of Local Exchange Plant", January 1992, Policy Paper C-30, Public Policy Institute—Division of Legislation, Research, and Public Policy of the American Association of Retired Persons (AARP) and Grant Lenahan, Executive Director, NGN Solutions, Bellcore, Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998

<sup>234</sup> SBC's \$6 Billion Project Pronto Initiative Brings DSL Internet to 80% of its Customers, SBC Communications Inc. Press Release, available from <http://www.sbc.com/data/network/0,2951,5,00.html>

<sup>235</sup> Before the Public Utilities Commission of the State of California, In the Matter of Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks and Investigation on the Commission's Own Motion Into Open Access and Network Architecture Development of Dominant Carrier Networks,

a customer who might only want to drive a low-end Volkswagen is being asked to bear the costs of providing a high end Jaguar to someone else.

Put another way, a customer who might only want to buy a car to drive to church on Sunday, has a variety of low priced car options to choose from to suit that purpose. A person who wants to purchase a phone for basic local and long distance voice service does not have that option. Instead, what that person is increasingly being asked to do is to pay for access to an advanced services network, which just happens to provide voice as one the many services that are offered.

The engineering history of the public switched network is provided because the Commission stated that it was interested in identifying the cost of providing voice access to the public switched network. Section 8 of this submission demonstrates that today's network is being designed to meet the more stringent technical requirements of non-voice services. NASUCA calls on the Commission to exercise its responsibility to prevent voice services from providing a subsidy or support to these non-voice products.

## **8.1 The PSTN Has Gradually Evolved Towards an Advanced Services Network**

Any discussion of the evolution of today's network must begin with an understanding of the fact that voice and data services impose different technical requirements and costs on the local network. The demands of data communication are fundamentally different from the demands of voice communication. For example, data, video, and audio require much more speed and bandwidth than voice in order for transmission to be fully effective.<sup>236</sup> In addition, data communication requires higher quality signals because computers cannot filter out noise on the line in the same way that a human ear can. This was especially a problem on analog networks as amplification of the analog wave, which is required periodically to overcome resistance and to boost the signal (the voice or data transmission), amplified both the signal as well as the noise. Such noise amplification had great potential to cause errors in data transmission.<sup>237</sup>

Digital technology was seen as a solution to the problems presented by the analog network in that digital signals provide clearer voice quality but, more importantly, digital signals enable higher speed transmission with fewer errors because noise is not regenerated when the signal is amplified as it is in an analog signal.<sup>238</sup> Digital

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Rulemaking 93-04-003 and Investigation 93-04-002 (Interim Arbitration, Line Sharing Phase), Opening Brief of Verizon California Inc., July 27, 2001, at 9.

<sup>236</sup> Typically, the 3 Kiloherztz (KHz) range typifies the upper limit required for voice transmission. Compare this with cable modem frequencies that have upstream frequencies of between 5 and 42 Megahertz (MHz) and downstream frequencies of between 50 and 750 MHz.

<sup>237</sup> Dodd, Annabel Z., The Essential Guide to Telecommunications (Second Edition), 2000 Prentice Hall PTR, at 7.

<sup>238</sup> Id.

technology has other benefits as well in that it is more reliable than analog service since fewer signal amplification points are needed with digital technology. Fewer amplification points mean fewer failure points, lower maintenance costs and hence, greater reliability. An additional benefit of the advent of digital technology, and one which the Bell System was eager to capitalize on, was that the expensive process of individually engineering private-line loops could be done away with.<sup>239</sup>

These advantages led to the digitization of the telephone network beginning in the 1960's with the introduction of the T-1 carrier system, which was capable of carrying 24 voice or data calls in digital format. This was seen as the start of the Bell System's evolution towards what was called the Integrated Services Digital Network (ISDN), which Bell System engineers and managers envisioned would eventually evolve the network into a general purpose service providing platform capable of offering services such as audio, image, video, and interactive data over one totally integrated network.<sup>240</sup> Bell System engineers and managers advocated evolving the network in this direction as a response to three major factors: technology trends, performance requirements, and the demand for new services with a data orientation.<sup>241</sup> It was projected that aggregate growth rates for these new services, especially the demand for digital data services, was going to increase dramatically by the mid 1980s.<sup>242</sup>

It was recognized early on that these new digital services would place transmission demands upon the loop plant that could not be accommodated without specific loop conditioning and/or circuit rearrangements and that the digital network could only reach its full potential by being engineered to reflect the special requirements of non-voice services.<sup>243</sup> It was anticipated that many of these services would operate simultaneously

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<sup>239</sup> Byrne, et al., 2006; G.J. Handler and D. Sheinbein, "Improving the Loop to Provide New Network Capabilities," in Proceedings 1982 International Symposium on Subscriber Loops and Services (New York: IEEE, 1982), 1-1; Arvina Karia and Salvatore Rodi, "A Digital Subscriber Carrier System for the Evolving Subscriber Loop Network," The Institute of Electrical and Electronics Engineers, Inc. Transactions on Communications 30 (September 1982), 2013; and Testimony of Leon J. Titman on Behalf of New York Telephone, New York Public Service Commission Proceeding on Telephone Services that Bypass Local Exchange or Toll Networks (28710), December 11, 1984, 2657.

<sup>240</sup> C.S. Skryzpczak and J.H. Weber, American Telephone and Telegraph Company, W.E. Falconer, Bell Telephone Laboratories, Bell System Planning of ISDN, IEEE International Conference on Communication: Denver Colorado, Vol. 1 of 4, 1981 at p. 19.6.1; and E.A. Smith, W.A.G. Walsh, and M.J. Wilson, How Non-voice Services Affect the Evolution Toward the ISDN, Telephony, June 14, 1982, at 44; The desired goal of an integrated single multifunction network, rather than multiple networks supporting circuit switching, packet switching, and various private line services was also articulated in various internal bell company documents around 1988. See, for example, Architectural Implications of High Speed Private Line Services in an Evolving ISDN Environment, BellCore Document # TM-NPL-013390, December 23, 1988.

<sup>241</sup> Id., at Paragraph 19.6.2. It should be recalled that IBM began selling digital computers in the 1950s, Microsoft was founded in 1975 and Apple introduced the first personal computer in 1977.

<sup>242</sup> Id., at Paragraph 19.6.1.

with the normal voice band Plain Old Telephone Service (POTS); consequently, at least two information channels (voice and data) to the customer were seen as being required.<sup>244</sup> It was recognized that this would require access lines with transmission standards quite different from the traditional POTS service. Because up to that point in time the network had been basically designed for POTS circuits it was also recognized that this would require the network to be conditioned on a service order basis, to meet the needs of the many special service circuits required for non-voice services.<sup>245</sup> This type of provisioning was viewed as unsatisfactory because of the expense involved and the delay it introduced in the delivery of the new digital services. These factors, coupled with the uncertainty involved in projecting demand for the new services, caused Bell System engineers and managers to seek a more generic positioning approach to the subscriber loop plant; one which would enable the efficient provisioning of both digital and analog services, essentially special services and POTS.<sup>246</sup> The approach advocated by Bell System engineers, and eventually adopted widely throughout the network, as being the most efficient and economical in terms of network resources and capital investments was the use of Digital Line Carriers (DLCs) positioned according to the carrier serving area (CSA) network design concept.<sup>247</sup>

This approach drastically altered the way the local loop was engineered. Previously the loop had been designed according to the Revised Resistance Design (RRD) standard. This standard set maximum loop resistance at 1500ohms, placed loading coils on all loops over 18K ft, and applied to loops originating at the central office.<sup>248</sup> Load coils were required on these long loops to compensate for loss and frequency response; unfortunately, they also eliminated signals above 4 kilohertz. While this bandwidth was perfectly acceptable when the only use of the loop was voice transmission it was not acceptable for the provision of non-voice digital services, such as data and Electronic Key phone type services, that required the ability to utilize higher frequencies.<sup>249</sup> The CSA network design concept changed all that.

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<sup>243</sup> T.P. Byrne, R. Coburn, and H.C. Mazzoni, American Telephone and Telegraph Company, G.W. Aughenbaugh and J.L. Duffy, Bell Telephone Laboratories, "Positioning the Subscriber Loop Network for Digital Services", A Paper Presented at the International Symposium on Services and Local Access (ISSLS) Conference in Toronto, September 20-24, 1982 at 71; and E.A. Smith, W.A.G. Walsh, and M.J. Wilson, How Non-voice Services Affect the Evolution Toward the ISDN, Telephony, June 14, 1982, at 44.

<sup>244</sup> Id.

<sup>245</sup> Id.

<sup>246</sup> Id., at 71-72.

<sup>247</sup> Id., at 72.

<sup>248</sup> *Ex parte* filing of U S West on Loop Design Issues, Sponsored by U S West, Sprint, and Bellsouth, filed in FCC Docket CC 96-45 and CC 97-160, October 8, 1997, at 5.

<sup>249</sup> Electronic Key phone services are typically used by businesses to route phone calls between people within an organization and phone calls to and from staff from the public switched network. These services utilize signaling frequencies in the 8KHz range. (See Dodd, Annabel Z., The Essential Guide to Telecommunications (Second Edition), 2000 Prentice Hall PTR, at 41-51.)

A CSA is a distinct geographical planning area capable of being served by a DLC whose maximum permissible outer bounds are determined by the serving distance over copper of unrepeated 64 kilobytes/second, and lower digital data service and by POTS loading considerations.<sup>250</sup> In other words, it is "...an area in which every customer has access to DS0-level digital services to include the capability of providing locally-switched voice-grade exchange service, special services, and the ISDN without special circuit design."<sup>251</sup> This means that the maximum loop length in a CSA is 12k ft for 19-, 22-, and 24-gauge cables and 9k ft for 26-gauge cables.<sup>252</sup> At these break points, remote DLC terminals are placed.<sup>253</sup> Fiber is then run from the central office to the DLC; this is the feeder portion of the loop, and Copper is run from the DLC to the customer premises; this is the distribution portion of the loop. By shortening the copper loop lengths serving customers in the CSA, and by pushing fiber and network electronics farther out into the network, the CSA design obviated the need for loading coils and other impediments,<sup>254</sup> which hampered the delivery of advanced services over the network. This especially benefited emerging technologies such as low bit rate data above voice and digital subscriber line (DSL), which were two technologies deemed at the time as having considerable potential.<sup>255</sup>

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<sup>250</sup> T.P. Byrne, R. Coburn, and H.C. Mazzoni, American Telephone and Telegraph Company, G.W. Aughenbaugh and J.L. Duffy, Bell Telephone Laboratories, "Positioning the Subscriber Loop Network for Digital Services", A Paper Presented at the International Symposium on Services and Local Access (ISSLS) Conference in Toronto, September 20-24, 1982 at 72.

<sup>251</sup> Telecommunications Transmission Engineering (Third Edition), Volume 3: Networks and Services, Bellcore 1990, at 109.

<sup>252</sup> T.P. Byrne, R. Coburn, and H.C. Mazzoni, American Telephone and Telegraph Company, G.W. Aughenbaugh and J.L. Duffy, Bell Telephone Laboratories, Positioning the Subscriber Loop Network for Digital Services, A Paper Presented at the International Symposium on Services and Local Access (ISSLS) Conference in Toronto, September 20-24, 1982 at 72; and Telecommunications Transmission Engineering (Third Edition), Volume 2: Facilities, Bellcore 1990, at 94.

<sup>253</sup> *Id.*

<sup>254</sup> Another impediment that was addressed by this design was bridged taps. Bridged taps permit the same copper wire to feed multiple locations. Digital services require the use of fewer bridged taps. (T.P. Byrne, R. Coburn, and H.C. Mazzoni, American Telephone and Telegraph Company, G.W. Aughenbaugh and J.L. Duffy, Bell Telephone Laboratories, Positioning the Subscriber Loop Network for Digital Services, A Paper Presented at the International Symposium on Services and Local Access (ISSLS) Conference in Toronto, September 20-24, 1982 at 71)

<sup>255</sup> C.S. Skryzpczak and J.H. Weber, American Telephone and Telegraph Company, W.E. Falconer, Bell Telephone Laboratories, Bell System Planning of ISDN, IEEE International Conference on Communication: Denver Colorado, Vol. 1 of 4, 1981 at p. 19.6.4. It should be noted that the CSA design is still in use today. For example, Sprint has stated that it utilizes CSA design standards in its actual network planning and design. (Sprint Corporation Cost Submission, Before in the Federal Communications Commission, In the Matter of Access Charge Reform, CC Docket No. 96-262, and Price Cap Performance Review for Local Exchange Carriers, CC Docket No. 94-1, Submitted November 16, 2001, at 9.)



The adoption of these new technologies and network designs had a significant impact on the obsolescence rate of the physical plant. A depreciation rate study performed by New England Telephone and Telegraph Company (NETT) noted that the use of fiber optic transmission would sharply reduce not only the future life expectancy of the cable accounts, but the conduit account as well and called for the prescription of significantly shorter service lives to deal with the fact that obsolescence was increasing at a faster rate due to the advent of newer technologies.<sup>256</sup> The company went on to call for higher depreciation rates in anticipation of much faster retirement of all kinds of telephone plant than had previously occurred.<sup>257</sup>

The driving force behind this increase in plant retirement, according to NETT, was the fact that the emerging fiber optic transmission medium was expected to significantly change the outside plant network. NETT stated that the increasing use of fiber would be "...stimulated by the expanding needs of the homes and offices of the future to include voice, video, and data covering a wide range of new services for which fiber will provide an economically viable medium compared to copper wire."<sup>258</sup>

These early steps towards a new integrated network architecture based on the Integrated Services Digital Network concept and utilizing the CSA network design standard for local loop plant engineering, although improving network efficiency, imposed considerable costs on the network; costs which were primarily incurred so as to enable the network to provide non-voice advanced services. For example, a couple of the RBOCs claimed that the total cost of their ISDN deployment was \$1 billion; this cost included upgrading their switches (from analog to digital) as well as their transmission networks to support ISDN.<sup>259</sup>

## **8.2 The Proliferation of Computers, the Development of Computer Networking, and the Advent of the Internet has had a Major Impact on the PSTN**

By 1989, 12 years after the introduction of the first personal computer by Apple in 1977, only about 12% of households in the US had a computer.<sup>260</sup> However, this started to rapidly change in the 1990s. The World Wide Web was born at the end of 1990, and, by

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<sup>256</sup> New England Telephone and Telegraph Company 1981 Depreciation Rate Study, Rhode Island, Issued November 1980, at 4.

<sup>257</sup> Id., at 11.

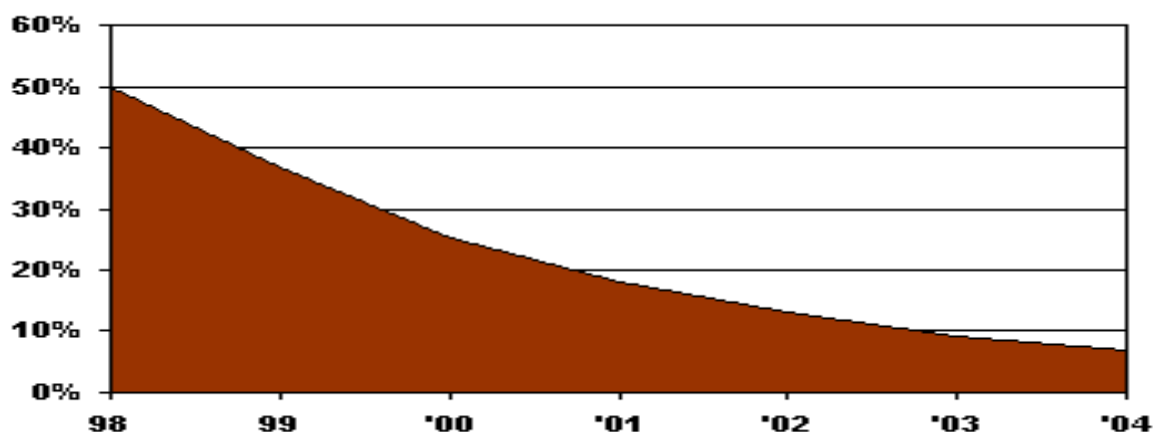
<sup>258</sup> Id., at 10.

<sup>259</sup> Bob Larribeau. The Lessons of ISDN, June 24, 1998 available at <http://www.ksg.harvard.edu/iip/ngct/larribeau.html>, at 7.

<sup>260</sup> Crandell, Robert W. and Charles L. Jackson, The \$500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access (A Criterion Economics, L. L. C. Report Sponsored by Verizon), July 2001 at 7.

1994, the term *Internet* entered the household lexicon.<sup>261</sup> During that time period, the number of Internet hosts had increased from approximately 159,000 in 1989 to 1.8 million by July of 1993.<sup>262</sup> By 1997, the number of Internet hosts had increased to 26.053 million<sup>263</sup> and over 30% of US households had a computer.<sup>264</sup> One year later data traffic surpassed voice traffic on the PSTN in both the US and the United Kingdom.<sup>265</sup>

**Figure 2 – Data Traffic is Growing to Dominate all Public Network Traffic**



(shaded = voice component of total PSTN traffic, data from 1999 and beyond are estimates)

Source: Next Generation Networks: A Practical View of Network Evolution, by Grant Lenahan, Executive Director, NGN Solutions, Bellcore

By the late 1990s confronted by the rapid increase in demand for data networking services from business customers as well as households that wanted to access the Internet, carriers began once again to look for a way to manage multiple services on a

<sup>261</sup> Id.

<sup>262</sup> David, Paul A., The Internet and the Economics of Technology Evolution, September 28, 1999, at 3.

<sup>263</sup> Id. As of July 2001, the number of Internet hosts had increased to 125.9 Million (Internet Domain Survey, July 2001 available at <http://www.isc.org/ds/WWW-200107/index.html>)

<sup>264</sup> Crandell, Robert W. and Charles L. Jackson, The \$500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access (A Criterion Economics, L. L. C. Report Sponsored by Verizon) , July 2001 at 10.

<sup>265</sup> Lenahan, Grant (Executive Director, NGN Solutions, Bellcore), Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998; and Dodd, Annabel Z., The Essential Guide to Telecommunications (Second Edition), 2000 Prentice Hall PTR, at 286.

common network infrastructure.<sup>266</sup> This was being necessitated by: 1) Simple economics -- carriers recognized that competitive pressures would not permit them to continue to build, operate, and provision separate networks for data and voice for too much longer;<sup>267</sup> 2) The explosion of data in the core network offered the opportunity for cost savings by migrating to a data network infrastructure;<sup>268</sup> and 3) The potential for increased efficiency in the utilization of network resources.<sup>269</sup> However, by this time technology had evolved to the point that IP, ATM and voice-over packet technology were more practical network design alternatives for the integrated network than the ISDN of bygone years.<sup>270</sup>

Bellcore termed this new version of the integrated network the Next Generation Network (NGN), and conceived of it as a gradual migration from a voice-centric network to a data-centric network, which would protect current PSTN investments, re-use as much of the PSTN's infrastructure as is practical, enable seamless interoperability between PSTN and NGN services, and incrementally follow profitable demand for NGN services.<sup>271</sup> Bellcore's approach was to divide the PSTN to NGN evolution into four tasks, which could be planned for and treated separately.

1. Creation of a consolidated, packet transport and switching infrastructure, likely based on either IP, ATM, or both;
2. Gradual migration of the analog copper loop plant to a packet access technology capable of transporting data, voice and video services over the "last kilometer" to customers;

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<sup>266</sup> Edward Traupman, Pete O'Connell, and John Minnis, Alcatel USA, Marc Jadoul and Huterer Mario, Alcatel, The Evolution of the Existing Carrier Infrastructure, IEEE Communications Magazine, June 1999, 134.

<sup>267</sup> Edward Traupman, Pete O'Connell, and John Minnis, Alcatel USA, Marc Jadoul and Huterer Mario, Alcatel, The Evolution of the Existing Carrier Infrastructure, IEEE Communications Magazine, June 1999, 134; and Grant Lenahan, Executive Director, NGN Solutions, Bellcore, Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998 at 4.

<sup>268</sup> Grant Lenahan, Executive Director, NGN Solutions, Bellcore, Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998 at 1.

<sup>269</sup> Jo Van Gorp, Vice-President Legal & Regulatory Affairs and Bruno Vanneuville, Manager Regulatory Affairs Level 3 International, "Voice over IP and the Next Generation Network Response to the ART consultation on Internet Telephony", Level 3 Communications' Response To The Autorité De Régulation Des Telecommunications (ART) Public Consultation Document On "Internet Telephony", April 14, 1999, at 4.

<sup>270</sup> Lenahan, Grant, Executive Director, NGN Solutions, Bellcore, Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998 at 4.

<sup>271</sup> Id., at 5-6.

3. Development of a flexible, open, hardware independent services control and services development layers to handle voice telephony, as well as new data and mixed media services in the future, and
4. Development of Operation Support Systems (OSS) and business processes to manage the new infrastructure and services.<sup>272,273</sup>

This vision of how the network should evolve was shared by some of the major ILECs. For example, on June 8, 1998 Bell Atlantic announced that it was launching a next generation long distance data network. The company's stated reason for doing this was: "The market for data services in the region is expected to double and possibly triple to \$80-90 billion a year, by the year 2003. The new network will support services such as virtual private networks, work-at-home and audio and video streaming over the World Wide Web."<sup>274</sup>

According to Stew Verge, president-Bell Atlantic Global Networks, Inc, this network was being designed to complement the high speed local loop services the Bell Atlantic telephone companies intended rolling out in 1998 and 1999 using asymmetric digital subscriber line (ADSL) technology.<sup>275</sup> From the beginning, it was Bell Atlantic's intent to eventually turn this network into a multiservice integrated network offering voice, data, and video over one network platform, as the following statement makes clear:

"Bell Atlantic's new ATM/SONET data network will also be capable of emulating a circuit switched, voice network over a platform built and designed for data. Integrating voice capabilities adds to the cost-effectiveness of the network, and long distance voice services can be joint marketed with services from Bell Atlantic's local telephone companies. But delivery of voice services over the data network is contingent on gaining the necessary regulatory approvals for Bell Atlantic to enter the long distance voice business."<sup>276</sup>

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<sup>272</sup> Lenahan, Grant (Executive Director, NGN Solutions, Bellcore), Next Generation Networks: A Practical View of Network Evolution, <http://www.telcordia.com/aboutus/vision/changingcommunications.html>, December 1998, at 5-6.

<sup>273</sup> The Next Generation Network: How Do We Get There, Issue Brief #4, Telcordia Technologies, available at <http://www.telcordia.com/newsroom/knowledgebase/briefs/ngn1issues.pdf>, February 6, 2001, at 2.

<sup>274</sup> "Bell Atlantic Launches Next Generation Long Distance Data Network to Address \$80 Billion Market for 21st Century Communications", PR Newswire, June 8, 1998 p608NYM008.

<sup>275</sup> Id.

<sup>276</sup> Id.

Furthermore, just recently, two more major ILECs announced their intention of following this path towards the converged Next Generation Network by converting their respective networks from circuit switched to packet switched.

“Sprint’s local telecommunications division (Sprint LTD) said it would be the first incumbent local exchange carrier in the U.S. to convert its entire local operation to a packet-switched network. ...[A]ccording to Mark Chall, vice president-network packet switching... the conversion would enable Sprint to expand its footprint to offer data services, frame relay, and digital subscriber line (DSL) services.”<sup>277</sup>

Under a deal with Nortel Networks valued at \$100 million to \$200 million, Qwest will replace its traditional circuit-switched network with a packet-based network throughout its 14-state region. With the new switching, voice and data are sent in packets, enabling Qwest to deliver integrated video, voice, and data applications.<sup>278</sup>

Another factor driving the changes in network engineering was the passage of the Telecommunications Act of 1996, which, coupled with the huge increase in data traffic discussed earlier and competitive pressures from cable modem providers, propelled the ILECs to put the roll out of xDSL technologies in the forefront of their network development plans.

Many of the current xDSL technologies have requirements similar to the requirements outlined earlier for ISDN and addressed by the placement of DLCs according to the CSA network design. For example, the elimination of load coils by shortening loop lengths.<sup>279</sup> While it is currently estimated that the installed base of DLCs serves between 28% to 35% of the loops deployed in today’s network,<sup>280,281</sup> unfortunately, the vast majority of these DLCs are narrowband and not equipped to support DSL without some infrastructure upgrades.<sup>282</sup> These can range from upgrades utilizing remote digital

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<sup>277</sup> “Sprint Local Service Plans Packet Network Conversion”, Telecommunications Reports, November 12, 2001, <http://www.tr.com/tronline/tr/2001/tr111201/Tr111201-21.htm>

<sup>278</sup> Andy Vuong, “Qwest Turning to New Network”, Denver Post, October 12, 2001

<sup>279</sup> “Reshaping Rural Telephone Markets: Financial Perspectives on Integrating Acquired Access Lines”, Equity Research Report, LEGG MASON Research, Fall 2001, at 145.

<sup>280</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf), at 6.

<sup>281</sup> Broadband “Everywhere” in Telephone Company Networks: A Case for Loop Extenders, May 2001, Symmetricon, available at [http://www.symmetricon.com/products/download/bn\\_052101.pdf](http://www.symmetricon.com/products/download/bn_052101.pdf), at 6.

<sup>282</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request

subscriber line access multiplexers (DSLAMs), integrated POTS+DSL line cards, remote-access multiplexer (RAM) solutions, to the replacement of legacy DLC with next generation digital line carriers (NGDLCs) or the more newly developed broadband loop carriers (BLCs).<sup>283</sup> For central office feed lines within 12k ft of the central office, central office DSLAMs are required for the provision of xDSL. For those cases involving lines beyond 17k ft to 18k ft, new technologies such as “improved” DSL and low frequency DSL are available.<sup>284</sup>

Regardless of the engineering and technological solutions employed in eventually deploying xDSL, the fact of the matter remains that its deployment will, in most cases, necessitate a re-engineering of the local loop plant and the central office switching equipment. Once again, this upgrade of the network will be performed to meet the demands of a non-voice, advanced services and will provide no significant benefits to voice only users of the network. Moreover, it is apparent that the ILECs are intent on providing this service to their customers.

For example, BellSouth’s CEO sees DSL as a top priority and expects the revenue stream to be somewhere close to \$600 million a year off the DSL product along.<sup>285</sup> Likewise Verizon is very committed to the roll out xDSL services, which it began doing in the form of ADSL in 1995.<sup>286</sup> Then there is SBC, which has recently announced that:

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for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf), at 6. Concerning the contention that most DLCs currently in the network must be upgraded to provide DSL see also, Local Loop 101: Technical Brief, OCCAM Networks, May 2001, available at [http://www.occamn networks.com/pdf/Local\\_loop.pdf](http://www.occamn networks.com/pdf/Local_loop.pdf); and Extending Asymmetric Digital Subscriber Line (ADSL) Services to Remote Digital Loop Carrier (DLC) Locations, The International Engineering Consortium, Web ProForum Tutorials, <http://www.iec.org>, at 1.

<sup>283</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf), at 9; and Extending Asymmetric Digital Subscriber Line (ADSL) Services to Remote Digital Loop Carrier (DLC) Locations, The International Engineering Consortium, Web ProForum Tutorials, <http://www.iec.org>, at 3-11.

<sup>284</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf), at 9.

<sup>285</sup> Robert Luke, “BellSouth sees new era Seamless broadband world will streamline data connections, CEO predicts”, Interview with F. Duane Ackerman, BellSouth CEO, The Atlanta Journal-Constitution, Atlanta Technology Wednesday, December 5, 2001. In this same article, Mr. Ackerman goes on to state that “Long-distance entry is important from a voice point of view. But it’s also important from a data point of view, where we’ve seen growth in the high 20 percent range.”

<sup>286</sup> Raymond W. Smith, Chairman of the Board and Chief Executive Officer, Bell Atlantic Corporation, 1995 Annual Report of the Bell Atlantic Corporation, “Letter to Shareowners”, at Page 4.

- ◆ 1,300 SBC central office switches have been upgraded to support DSL, roughly 90% of the original goal;
- ◆ 3,000 of the 20,000 planned remote fiber nodes have been installed. SBC needs these to keep DSL loop distances less than 12,000 feet, the optimal distance for DSL; and
- ◆ It has installed 954,000 DSL access lines.<sup>287</sup>

As has been demonstrated the guiding principle behind the development of the network from the introduction of the T-1 carrier system in the 1960's up to today's evolving integrated Next Generation Network has been to evolve the network toward meeting the needs of non-voice advanced services. Given this fact, it is clear that the primary "cost causers" driving network access costs today, and for the foreseeable future, are the users of these non-voice advanced services such as xDSL, peer-to-peer computing, online gaming and the like. Economic theory stresses that to maximize society's welfare, basic telephone service should only bear a portion of the cost of upgrading the network to satisfy the more stringent requirements of non-basic services. The additional charges to basic services should be based on the value of the improved, plain-old-telephone service.<sup>288</sup> For these reasons basic local exchange services should be insulated from the cost effects generated by developing the network to meet the needs of non-voice advanced services.

### **8.3 The FCC Was Well Aware of the Changes Taking Place in the Network and Actively Developed Policies to Promote the Development of Advanced Services**

The FCC has for many years been actively promoting the re-engineering of the PSTN for the provision of non-voice advanced services. This policy accelerated with the passage of the Telecommunications Act of 1996. In its Local Competition First Report and Order, the FCC noted that:

"Our definition of loops will in some instances require the incumbent LEC to take affirmative steps to condition existing loop facilities to enable requesting carriers to provide services not currently provided over such facilities. For example, if a competitor seeks to provide a digital loop functionality, such as ADSL, and the loop is not currently conditioned to carry digital signals, but it is technically feasible to condition the facility,

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<sup>287</sup> John Dix, Project Pronto Bucking Along With Fiber Help, Network World, 05/21/01, available at <http://www.nwfusion.com/columnists/2001/0521edit.html>.

<sup>288</sup> See, for example, Sickler, J. "A Theory of Telephone Rates", Journal of Land and Public Utility Economics 4, 177 (1928).



the incumbent LEC must condition the loop to permit the transmission of digital signals.”<sup>289</sup>

As the FCC went on to note, such conditioning “...may involve removing load coils or bridged taps that interfere with the transmission of digital signals.”<sup>290</sup>

During the Universal Service proceedings, the FCC ruled that “[t]he loop design incorporated into a forward-looking economic cost study or model should not impede the provision of advanced services. For example, loading coils should not be used because they impede the provision of advanced services.”<sup>291</sup> The FCC also ruled that “[s]tate studies must be based on forward-looking economic cost, be consistent with the study used for the state universal service program, and not impede the provision of advanced services.”<sup>292</sup> Interestingly, in this same Order, the FCC went on to find that “...to the extent that unbundled network elements offered on the market provide services in addition to the supported services, the cost of those elements may exceed the cost of providing supported services.”<sup>293</sup> This statement implies that the FCC believed that the engineering standard for a UNE could require a company to spend more on the UNE loop than it would on the universal service loop because that UNE loop could be used provide non-supported services, such as data, in addition to supported services.

Later on, in the Platform Order, the FCC mandated that models submitted for consideration for adoption in determining universal service high cost support must meet “...a reasonable standard for ensuring that the network designed does not impede the provision of advanced services.”<sup>294</sup> For example, the FCC expressly prohibited a model's use of loading coils because their use may impede high-speed data transmission.<sup>295</sup> The FCC went on to note that; “...model proponents agree that

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<sup>289</sup> Before the Federal Communications Commission, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, CC Docket Nos. 96-98 and 95-185, First Report and Order, FCC 96-325, Adopted: August 1, 1996, Released: August 8, 1996, at ¶382.

<sup>290</sup> Id., at Footnote No.826. The removal of load coils and bridged taps was also seen as a major impediment to the delivery of data services.

<sup>291</sup> Before the Federal Communications Commission, In the Matter of Federal State Joint Board on Universal Service, CC Docket No. 96-45, Report and Order, FCC 97-157, Adopted: May 7, 1997. Released: May 8, 1997 at ¶250(1).

<sup>292</sup> Id., at ¶206(1).

<sup>293</sup> Id., at ¶247.

<sup>294</sup> Before the Federal Communications Commission, In the Matter of Federal-State Joint Board on Universal Service and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs, CC Docket Nos. 96-45 and 97-160, Fifth Report and Order, FCC 98-279 (Platform Order), Adopted: October 22, 1998, Released: October 28, 1998, at ¶29.

<sup>295</sup> Id., at ¶67.



forward-looking design requires that wire centers be interconnected with one another using optical fiber networks known as Synchronous Optical Network (SONET) rings.”<sup>296</sup> As the FCC recognized, “SONET is a set of standards for optical (fiber optic) transmission. It was developed to meet the need for transmission speeds above the T3 level (45 Mbps) and is generally considered the standard choice for transmission devices used with broadband networks.”<sup>297</sup>

When the FCC mandated line sharing in its Line Sharing Order it again ordered that the ILECs undertake upgrades to their physical plant in order to further the deployment of advanced non-voice services, in this case xDSL. For example, the FCC found “...where the only interfered-with service itself is a known disturber, as designated by this Commission, that service shall not prevail against the newly deployed technology. This exception prevents the undue protection of noisier technologies that are at or near the end of their useful life cycle, at the same time preventing the undue preclusion of new, more efficient and spectrally compatible technologies.”<sup>298</sup> The FCC effectively mandated that the network be upgraded to include new technologies that it believed will manage the spectrum sharing advanced services and voice more efficiently than older technologies that might already be in place. This position is reiterated strongly in the following statement:

“Nevertheless, we reiterate our strong belief that industry should discontinue deployment of known disturbers. Likewise, we continue to emphasize that carriers should, to the greatest extent possible, replace known disturbers, including analog T1, with new and less interfering technologies.”<sup>299</sup>

Furthermore, as Ameritech noted, the spectrum sharing mandated in the Line Sharing Order would require development of new and modified industry standards, administration capabilities, operational procedures and OSS. All of which would require enhancements to existing practices, procedures, and support systems.<sup>300</sup> Ameritech went on to argue that sharing the frequencies on the same copper loop requires

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<sup>296</sup> Id., at ¶24.

<sup>297</sup> Id., at Footnote No. 59.

<sup>298</sup> Before the Federal Communications Commission, In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capabilities and Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket Nos. 98-147 and 96-98, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-8-98, FCC 99-355 (Line Sharing Order), Adopted: November 18, 1999, Released: December 9, 1999, at ¶208.

<sup>299</sup> Id., at ¶220.

<sup>300</sup> Before the Federal Communications Commission, In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capabilities, CC Docket No. 98-147, Comments of Ameritech, September 25, 1998, at 22.

effective management of the Power Spectral Density (PSD) of signals transmitted on copper pairs in the same bundle of cable and necessitates that those pairs are placed in binder groups with other technologies that will not interfere with the signals being utilized.<sup>301</sup> This type of usage adds new administrative costs to local loop management; costs that would not be incurred for the provision of voice only service.

All of these actions taken by the FCC demonstrate policy objectives designed expressly to promote local loop engineering practices that imposed costs on the network for the purposes of providing non-voice advanced services, especially data services. In the separations process, these costs are allocated to the loop, and the FCC has taken no steps to ensure that these costs are not solely recovered from basic local exchange subscribers through the SLC.

This leaves customers paying for the advanced network regardless of whether they utilize the advanced non-voice services the network was specifically designed to provide. This is contrary to 254(k) and involves a subsidy by the monopoly voice service of the comparatively competitive advanced non-voice services.

Finally, the FCC is on record as follows:

"We conclude that the federal mechanism should assume a maximum copper loop length of 18,000 feet... "[d]emands for sophisticated services are requiring the outside plant network to support services ranging from low-bit rate transmission to high-bit rates. To meet this demand, a digital subscriber carrier is being placed into the network starting at 12,000 feet from the serving [wire center]."<sup>302</sup> ... This design standard seems to exceed the service quality standards for universal service. We find that the public interest would not be served by burdening the federal universal service support mechanism with the additional cost necessary to support a network that is capable of delivering very advanced services, to which only a small portion of customers currently subscribe.<sup>303</sup> Accordingly, we conclude that the federal mechanism should assume a maximum copper loop length of 18,000 feet."<sup>304</sup>

The Commission has failed to take steps that prevent basic exchange service, through the tied SLC charge, from "support[ing] a network that is capable of delivering very

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<sup>301</sup> See, for example, Before the Federal Communications Commission, In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capabilities, CC Docket No. 98-147, Comments of Ameritech, September 25, 1998, at 24-26.

<sup>302</sup> Outside Plant Systems: Outside Plant Engineering Handbook, Lucent Technologies, Bell Labs Innovations (doc. 900-200-318, Lucent 1996) at 13-1

<sup>303</sup> See 47 U.S.C. 254(c)(1)(B).

<sup>304</sup> Federal Communications Commission, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, FCC 98-279, October 28, 1998, Paragraph 70.

advanced services.”<sup>305</sup> We strongly recommend that in this proceeding the Commission take such actions, as required by 254(k), that are clearly in the public interest.

#### **8.4 The Appropriate Mechanism for Recovering Joint Costs on the Network is Based on the Market Demand for the Jointly Provided Voice and non-Voice Services which Differentiates the Value of the Two Services**

The key question for 21st century regulation becomes -- if the loop is now a joint product for voice and data services, what is the appropriate mechanism for efficiently sharing these costs, and how do we determine how much of the cost should be recovered through the Subscriber Line Charge?

The joint costs of voice and non-voice services should be shared based on the market demand attributable to each service since there is no way to differentiate the value of jointly provided services other than by using the market. It is clear that competitive markets set prices for jointly supplied products, and this is the only way that the FCC can determine a reasonable amount to allocate to the cost of providing the high-frequency spectrum UNE on shared lines. At this time, there is no meaningful evidence to indicate what percentage of loop costs should be allocated to the high-frequency spectrum UNE, and for this reason, we support as a starting point for cost allocation the FCC’s Video Dialtone proposal for a 50-50 split for jointly used loops.

With regard to implementation of the CALLS order on Subscriber Line Charges, we argue for a gradual transition to efficient pricing since this will best serve economic and political objectives -- without inducing large increases in consumer costs, and at the same time minimizing distortions which affect consumer and investor decisions. By holding down the Subscriber Line Charge and gradually increasing charges on the high-speed data services that are imposing new demands on the loop, the FCC can best meet its multiple objectives (e.g., efficient pricing, universal service, expansion of high speed services, etc...).

#### **8.5 Today’s Technology has Made the Fiber Feeder Plant Investment Traffic-Sensitive**

Noticeably absent from the ILECs submission is any discussion of how the evolution of technology has impacted the cost structure of the loop. Historically the loop was exclusively composed of non-traffic-sensitive (NTS) investments. The ubiquity of NTS investments was a primary consideration in the Commission’s conclusion that loop costs should be recovered through a fixed customer charge.

Today’s technology is of course much different. In this section we show that today’s digital line carrier systems have made a portion of the loop traffic-sensitive.

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<sup>305</sup> Id.

Consequently it would be economically efficient to recover a portion of the loop costs from interexchange carriers through usage-based charges.

Digital Loop Carriers (DLCs) were originally introduced to cost-effectively deploy voice in rural areas. They have grown in size from the 96- line channel bank type terminals to the large 2,048 line terminal with fiber optics and built in network management that characterizes the Next Generation Digital Loop Carriers (NGDLCs) currently being deployed as the platform for delivery and transport of narrowband, wideband, and potential broadband services in today's networks.

Approximately 35% of all North American access lines are presently supported by fiber based NGDLCs,<sup>306</sup> and this number is growing with firms such as SBC<sup>307</sup> and Verizon<sup>308</sup> announcing that fiber based NGDLCs are being deployed in their respective networks so as to provide non-voice advanced services such as xDSL. Furthermore, the forward looking cost model developed by the FCC, the HCPM, assumes that all deployed DLCs are fiber based NGDLCs.<sup>309</sup>

In the late 1980s Bellcore developed the TR-303, later known as the GR-303, protocol that greatly facilitated the use of NGDLCs.<sup>310</sup> An industry standard, GR-303 specifies an open interface that allows for interoperability between Class 5 switches and NGDLCs. This eliminates the need for proprietary interfaces common among access

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<sup>306</sup> DSL Anywhere: A Paper Designed To Provide Options For Service Providers To Extend The Reach Of DSL Into Previously Un-Served Areas, a DSL Forum Whitepaper submitted December 12, 2001 in the National Telecommunications and Information Docket No. 011109273-1273-01, In the Matter of Request for Comments on the Deployment of Broadband Networks and Advanced Telecommunications, available at [http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl\\_anywhere.pdf](http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf), at 27.

<sup>307</sup> See, for example, Pacific Bell Consultant Vendor Support Group Newsletter, June 2000, [http://www.pacbell.com/Products\\_Services/CSG/consultant-news-june00.pdf](http://www.pacbell.com/Products_Services/CSG/consultant-news-june00.pdf), at 2; and SBC Project Pronto Notice, Issue 2.1, September 1, 2000, at 3, where it states: "Project PRONTO will deploy an advanced, highly flexible, next-generation digital loop carrier (NGDLC)." This document available at [http://www.sbc.com/PublicAffairs/PublicPolicy/pronto\\_gateways/docs/SBC\\_NG\\_Notify\\_090100\\_v2\\_1.doc](http://www.sbc.com/PublicAffairs/PublicPolicy/pronto_gateways/docs/SBC_NG_Notify_090100_v2_1.doc). And Estes, Renée C., Marylyn Longo, and George Kubes, SBC Technology Resources, Inc., GR-303 Deployment Issues: An ILEC Perspective, July 29, 1998, Power Point Presentation made at the 1998 GR-303 Industry Symposium, available from [http://www.telcordia.com/resources/genericreq/gr303/symposium\\_archive.html#1998](http://www.telcordia.com/resources/genericreq/gr303/symposium_archive.html#1998), at slide 7.

<sup>308</sup> Before the Federal Communications Commission, In the Matter of Access Charge Reform, CC Dockets 94-1 and 96-262, Verizon's Cost Submission, November 16, 2001, Attachment D, pp. 4.

<sup>309</sup> Before the Federal Communications Commission, In the Matter of Federal-State Joint Board on Universal Service and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs, CC Docket Nos. 96-45 and 97-160, Tenth Report and Order, FCC 99-304, Adopted: October 21, 1999, Released: November 2, 1999, at ¶14, where it is stated that "[i]f the feeder is fiber, it extends to a DLC terminal..." and at footnote no. 593. This conclusion is also supported by the New Jersey Board of Public Utilities who stated that "that the use of 100 % IDLC is an appropriate and realistic forward-looking assumption." Docket No. TO00060356 at Page 6.

<sup>310</sup> The FCC's Tenth Report and Order, FCC 99-304 at footnote no. 593, expressly states that in modeling the forward looking network HCPM assumes the use of GR-303 capable hardware on IDLC systems.

systems, and allows service providers to reduce capital and operating costs by enabling a mix-and-match deployment scheme utilizing products from a variety of vendors.<sup>311</sup> Two other advantages of the GR-303 interface is that it supports a flexible concentration ratio and it has a built in network management channel.<sup>312</sup> Concentration is a technique enabling some number of telephone users to employ a smaller number of trunk paths to the switch by utilizing the principle that not everybody uses his or her telephone at the same time.<sup>313</sup> By concentrating traffic at the NGDLC equipment port requirements could be reduced, greatly improving the utilization, and hence economics, of expensive Class 5 switching ports.

For example, consider a residential application consisting of 668 POTS lines with a per-line traffic requirement of 6 ccs and a blocking probability of 0.01. Without loop concentration, this application would require 28 DS-1 facilities and 28 DS-1 ports. Using loop concentration, remote terminals accepting up to 668 subscriber lines can be supported with only six DS-1 facilities (approximately an 80% facility reduction), while ensuring the same grade of service as the non-concentrated scenario.<sup>314</sup>

By virtue of the fact that NGDLCs equipped with GR-303 type interfaces are capable of performing concentration, they can be said to possess a primitive level of switching as part of their inherent make-up. This fact is recognized by the ILECs who have testified that a GR-303 Remote Terminal possesses some call processing capabilities similar to a Local Digital Switch and that, because of these capabilities, the GR-303 Remote Terminal can be viewed as an extension of the central office to the customer.<sup>315</sup> As a result of this functionality NGDLCs are properly viewed as the first piece of traffic-sensitive equipment in the telephone network. This is because deployment of NGDLCs equipped with GR-303 type interfaces was, and is, being carried out by companies so as to better balance traffic loads resulting from increased network usage, thereby expanding the capacity of the network in a more economical manner. Economists have

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<sup>311</sup> GR-303 IDT INTERFACE, A product announcement document from Taqua Systems, March 2001, <http://www.taqua.com>

<sup>312</sup> GR-303 supports flexible concentration ratios from 1:1 (672 lines served by 28 DS1s) up to 46:1 (2,048 lines served by 2 DS1s). (The Evolution of Digital Loop Carriers, Occam Networks Whitepaper, May 2001, <http://www.occamnetworks.com/pdf/DLCEvolution3-01.pdf>, at 4.)

<sup>313</sup> David Ehreth, Strategies for Unbundling Remote Access Terminals, A Westwave White Paper, October 6, 2000, <http://www.d2m.com/AEAweb/Unbundling.pdf>, at 1.

<sup>314</sup> ESMA—TR-303 Interface Providing Enhanced Capacity, Services, and Cost-Efficiency, Nortel Networks Planning Document for the Expanded SCM-100A digital interface, April 1996, at 21.

<sup>315</sup> Ehreth, Strategies for Unbundling Remote Access Terminals, at 1. The Class 5 switch that is connected to an NGDLC controls the switching (concentration) function at the NGDLC through the GR-303's built in network management channel, and Before the New Mexico State Corporation Commission, Rebuttal Testimony of Todd Bohling on Behalf of AT&T, In The Matter Of The Interconnection Contract Negotiations Between AT&T Communications Of The Mountain States, Inc. And U S West Communications, Inc., Pursuant To 47 U.S.C. Section 252, Docket No. 96-411-TC, January 21, 1997, at 26.

typically found that capacity costs incurred “...in this way are traffic-sensitive, because they are marginally attributable to usage, and may be regarded as the long-run marginal cost equivalent of the congestion costs that they mitigate.”<sup>316</sup> This is a fact that has been long recognized by regulatory agencies in other countries.

In Europe, which utilizes an interface specification that is functionally equivalent to the GR-303,<sup>317</sup> regulatory agencies in both Germany and the United Kingdom have found DLCs, by virtue of their concentrating functions, to be traffic-sensitive portions of the network and regulate them accordingly.

For example, in Germany, the Regulatory Authority for Telecommunications and Posts (RegTP), has found that: “Subscribers not directly connected to a local exchange will have their calls begin and end at the first concentrating element of the network. This element is designated the remote concentrator or remote digital line unit.”<sup>318</sup> What this means, according to the RegTP, is that the access network provides “...transmission functionality between the terminal equipment and the termination point of the outside plant before the first concentration point, set up either at a local exchange or at a remote concentrator unit.”<sup>319</sup> In other words, the RegTP goes on to state, “[b]y virtue of their concentrator function the digital line units are, from the subscriber's point of view, the first traffic-sensitive equipment of the telephone network.”<sup>320</sup>

For these reasons the “...concentrators, line trunk groups and interoffice network elements are dimensioned as a function of traffic offered in the busy hour”<sup>321</sup> in the RegTP's modeling of customer network access costs. The RegTP has subsequently reiterated this position in a later cost modeling document where it found that “[a]ll network components beyond the concentrator must be dimensioned as a function of traffic...”<sup>322</sup>

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<sup>316</sup> Alfred E. Kahn and William B. Shew, “Current Issues in Telecommunications Regulation: Pricing”, 4 *Yale Journal on Regulation* 191 (1987), at 226.

<sup>317</sup> Taylor, Martin, *Complete DSL: Requirements for Public Multi-line Telephone Service Delivery over the DSL Access Network*, 1999, a CopperCom Technology White Paper, at 12.

<sup>318</sup> *An Analytical Cost Model for the Local Network*, A Consultative Document prepared by Wissenschaftliches Institut für Kommunikationsdienste, GmbH (WIK) for the Regulatory Authority for Telecommunications and Posts, March 4, 1998, at §2.3.1. A digital line unit is functionally equivalent to a DLC.

<sup>319</sup> *Id.*, at §2.3.2. Document available on the Regulatory Authority for Telecommunications and Posts (RegTP) website at [http://www.regtp.de/imperia/md/content/reg\\_tele/anakosteng/2.pdf](http://www.regtp.de/imperia/md/content/reg_tele/anakosteng/2.pdf)

<sup>320</sup> *Id.*, at §2.3.3. Document available on the Regulatory Authority for Telecommunications and Posts (RegTP) website at [http://www.regtp.de/imperia/md/content/reg\\_tele/anakosteng/11.pdf](http://www.regtp.de/imperia/md/content/reg_tele/anakosteng/11.pdf)

<sup>321</sup> *Id.*

<sup>322</sup> *Analytical Cost Model: National Core Network*, Consultative Document 2.0, Prepared by Wissenschaftliches Institut für Kommunikationsdienste, GmbH (WIK) for the Regulatory Authority for Telecommunications and Posts, June 30, 2000, at §2.3. While the quotes presented here are from

The practice of considering the concentrator and all network elements between the concentrator and the local switch as being traffic-sensitive is also followed by the Office of Telecommunications (OFTEL) in the United Kingdom. OFTEL breaks down the cost of concentrators into port costs, processing costs, unattributed costs, line driven costs, and common costs. Line-driven costs are considered relevant to the incremental costs of access. The port, processing and unattributed concentrator costs are considered to be relevant to the incremental cost of conveyance<sup>323</sup> and are converted into per busy hour minute costs.<sup>324</sup> Transmission from the concentrator to the local switch is also considered to be part of conveyance and is treated as a traffic-sensitive cost like the port, processing and unattributed concentrator costs.<sup>325</sup>

The Australia Competition and Consumer Commission (ACCC) similarly treats the concentrator as part of the of the switching/transmission network, not as part of the access network. As is evidenced by the following statement:

“Under Telstra’s customer access network architecture, customers are connected to the broader network by means of cabling which runs from a customer’s premises to what is known as ‘Customer Access Module (CAM)’ equipment. The CAM equipment does not necessarily undertake switching; rather its function is to provide battery feed, ring current and dial tone to the customer premises equipment. CAM equipment includes remote switching units or stages (RSUs/RSSs), remote (and integrated remote) integrated multiplexers (RIMs/IRIMs) or newer generation remote customer multiplexers (C-MUXs). In some areas, notably in CBD’s, customers are directly connected to local access switches (LAS) which effectively serves as the CAM in this case.”<sup>326</sup>

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Consultative documents provided by WIK, the RegTP acknowledges that the analytical cost models, and the documentation of those models, developed by WIK have been adopted by the RegTP in its regulation of the network. Evidence for this can be found on the RegTP’s website where it is noted that the local loop consultation process of 1998 led to the decision to separate modeling of the access network from modeling of the conveyance network. This decision was put into practice in the in the consultative document “An Analytical Cost Model - National Core Network”. Evaluation of this document in light of the comments received, led to the RegTP to make the structural modifications and refinements, set out in the updated 2.0 document referenced above. (See, [http://www.regtp.de/en/schriften/start/fs\\_08.html](http://www.regtp.de/en/schriften/start/fs_08.html))

<sup>323</sup> OFTEL defines the long run incremental cost of conveyance to be the cost that would be saved in the long run if no traffic were provided over the network, but access were to continue to be provided. (Long Run Incremental Costs: The Bottom-Up Network Model, OFTEL, March 1997, Version 2.2, at 2)

<sup>324</sup> Id., at 2-13. Where the weighted average cost for the concentrators is computed using the proportion of busy hour traffic through the concentrators (p.13)

<sup>325</sup> Id., at 15-16.

<sup>326</sup> Pricing of Unconditioned Local Loop Services (ULLS) and Review of Telstra’s proposed ULLS Charges, Australian Consumer and Competition Commission, August 2000, at 5.

In other words, according to the ACCC, local loop service consists of service for the use of copper-based communications wire between the boundary of a telecommunications network and a point where the copper terminates.<sup>327</sup> In the Australian context this point would be the Customer Access Module equipment defined above.

These examples provide ample support for considering fiber-fed NGDLCs to be the first traffic-sensitive component of the network that an end user encounters. The regulatory agencies in these other countries rightly recognize that today's telecommunications networks are radically different from the networks that were in use when the FCC undertook access reform in the early 1980s. At that time, customers were almost exclusively connected to the wire center through dedicated facilities. Today, firms rely on NGDLC technology, and the engineering literature clearly demonstrates that this equipment is traffic-sensitive.

We have shown that the fiber facilities deployed on a forward-looking basis are engineered to satisfy peak-hour usage. It is economically inefficient for the Commission to maintain its current policy of recovering these traffic-sensitive costs through fixed customer charges because such costs related to the NGDLCs, and the fiber feeder that connects them to the local switch, are more properly recovered through a peak-hour per minute of use access charge. The Commission's current pricing rules require end users to subsidize interexchange carriers. The interexchange carriers are imposing traffic-sensitive costs on the local exchange networks that are being recovered through fixed Subscriber Line Charges.

Section 254(k) directs the Commission to prevent supported services from subsidizing non-supported services. Interexchange toll usage, or switched access, is not a supported service. The Commission's current pricing rules and cost allocation procedures requires monopoly supported services to subsidize the non-supported and competitive interexchange toll usage because traffic-sensitive costs are currently being recovered through the Subscriber Line Charge. NASUCA strongly urges the Commission to abide by the clear intent of the Act by ending this implicit subsidy.

## **8.6 The Most Recent Annual Company Reports of the ILECs Clearly Show that they Intend to Increasingly Emphasize the Provision of Data Services**

The purpose of this section is to provide documentation on the stated purpose of the ILECs' capital expenditures during the past decade. The ILECs have repeatedly pronounced that they were modifying the architecture of their loop plant so that they could provide data and video services. These statements clearly indicate that the loop is a joint input used for the provision of basic voice, as well as data and video services. We are providing this documentation for, among other reasons, to support our cost estimates.

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<sup>327</sup> Id., at 6.



As the FCC has recognized, the telephone companies are moving the electronics closer to end-users so that they can supply advanced telecommunications and video services. The statements of the ILECs lead to the conclusion that a major cost driver (if not the most important one) for loops is the provision of these new services. Neither the CALLS order, nor the ILECs' cost studies submitted in this docket, reflect these well-recognized developments.

More recent public statements by ILECs have perhaps been more realistic with respect to what they can accomplish with respect to provision of advanced services, but they continue to indicate that provision of advanced services will be an integral part of their business development strategies.

Data provided by Verizon in its 2000 Annual Report are indicative of the importance that ILECs attribute to the development of advanced services like DSL. In 2003, data services will account for 16% of total Verizon revenues compared to 9% in 2000 -- data revenues increased by 30% in 2000, and the number of DSL subscribers more than tripled. Capital expenditures for telecom data services will increase by 20% from \$3.98 billion to \$4.78 billion over the same period. By comparison, Verizon's capital expenditures for telecom voice services will decline from \$5.78 billion to \$5.58 billion by 2003.<sup>328</sup>

Statements in Sprint's Annual Report indicate much the same shift in emphasis toward advanced services and away from voice services with data service revenues expected to account for 50% of revenues from wireline services by 2003.

"Our challenge is to transform Sprint into a data-centric company. On the wireline side of the business, it means shifting focus from traditional voice business to concentrating on developing data, Internet, Sprint ION and international capabilities. Moving from predominately voice services to higher growth areas of data and broadband services should result in a significant shift in our revenue mix. Currently, the Global Markets Group generates approximately 45 percent of Sprint's total revenues, with voice services accounting for approximately 70 percent of the mix and data services 30 percent. Our local operations produce about 26 percent of Sprint's revenues with voice accounting for approximately 90 percent of the mix and data 10 percent. By the end of 2003, across both of these wireline businesses, we anticipate that rapidly growing data and broadband services will account for half of the annual revenues. Sprint is well positioned with the assets to win a larger share of these markets and to grow its base of technologically advanced customers who demand higher-speed Internet access."<sup>329</sup>

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<sup>328</sup> Verizon, Annual Report, 2000. Pages 6-7. [http://investor.verizon.com/annual/vz\\_bw2.pdf](http://investor.verizon.com/annual/vz_bw2.pdf)

<sup>329</sup> Sprint, Annual Report, 2000. [http://www.sprint.com/sprint/annual/00/cs\\_frames3.html](http://www.sprint.com/sprint/annual/00/cs_frames3.html)

For SBC, data revenues increased from \$5.3 billion in 1999 to \$7.5 billion in 2000 – an increase of 41.7%, increasing their share of total company revenues from 10.8% in 1999, to 14% in 2000.<sup>330</sup> By the end of 2000, 18.3 million of SBC's wireline customer locations (more than half) had access to broadband technology, representing a 79% annual increase, and SBC has stated that it will provide broadband technology to anyone within 12,000 feet of its central offices.<sup>331</sup> With respect to operation and maintenance expenses, approximately 38% of the annual increase was related to the costs of rollout of DSL services in 2000 -- as compared to 26% in 1999.<sup>332</sup>

SBC has also indicated other acquisitions that suggest that it is increasingly focusing on advanced services. In September 2000, SBC announced an agreement making Covad Communications (Covad) an in-region and out-of-region DSL provider for SBC, and it purchased 6% of Covad in November, 2000.<sup>333</sup> In November 1999, SBC and Prodigy Communications Corporation announced an agreement under which SBC purchased 43% of Prodigy, and will make Prodigy its exclusive retail consumer and small business Internet access service for customers in SBC's service area. At the time, SBC committed to deliver a minimum of 1.2 million new customers over three years to Prodigy.<sup>334</sup>

BellSouth Telecommunications stated throughout the mid 1990s in its filing to the Securities Exchange Commission (SEC) that:

“...network is in transition from an analog to a digital network, which provides capabilities for BellSouth Telecommunications to furnish advanced data transmission and information management services.”<sup>335</sup>

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<sup>330</sup> SBC, Annual Report, 2000, Page 1, 3.

[http://www.sbc.com/Investor/Financial/annualreport/2000\\_AR\\_FINAL.pdf](http://www.sbc.com/Investor/Financial/annualreport/2000_AR_FINAL.pdf)

<sup>331</sup> SBC, August 14, 2001 *ex parte* Presentation to the FCC, GN Docket No. 00-185 – Page 7. [http://gulfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native\\_or\\_pdf=pdf&id\\_document=6512762699](http://gulfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6512762699).

<sup>332</sup> SBC Corporation Report for the Fiscal Year Ended December 31, 2000 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

<http://www.sec.gov/Archives/edgar/data/732717/000073271701000019/0000732717-01-000019.txt>

<sup>333</sup> Id.

<sup>334</sup> SBC Corporation Report for the Fiscal Year Ended December 31, 1999 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

<http://www.sec.gov/Archives/edgar/data/732717/0000732717-00-000018.txt>

<sup>335</sup> BellSouth Corporation Report for the Fiscal Year Ended December 31, 1993, 1994, 1995, 1996 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

<http://www.sec.gov/Archives/edgar/data/92088/0000912057-94-001123.txt>

Similar filings to the SEC for 1999 indicated:

“We have deployed ADSL (asymmetrical digital subscriber line) which provides Internet access speeds up to 30 times faster than today's fastest dial-up modems. We offer ADSL in 31 markets ... access is currently available to over 7 million access lines and we plan to increase this to 11.5 million by the end of 2000. In January 2000, we began offering a self-install kit for ADSL in seven cities and announced a partnership with Darwin Networks to expand ADSL offerings to additional areas in the southeastern US.”<sup>336</sup>

BellSouth was planning to increase its DSL coverage by 39% to 16.0 million qualified access lines by the end of 2001, and announced that its broadband business priorities include the accelerated rollout of ADSL, e-center services, Web hosting, and Internet platform (IP) services applications.<sup>337</sup> Finally, more recent projections by BellSouth indicate that it is expecting its number of DSL subscribers to nearly double in 2002, after nearly tripling in 2001.<sup>338</sup>

Finally, in its most recent Annual Report, Qwest could not be clearer regarding the importance of advanced services for its future from its statement on page 1 of the report:

“Qwest Vision: To build shareholder value by becoming the customer-focused market leader for worldwide broadband internet communications and applications services.”<sup>339</sup>

Qwest goes on to point out that it expects revenues from business services to increase 25-30% in 2001, led by demand for “high-growth internet and data services,” and that it will spend \$100 million for high-speed optical networking capacity, and an additional \$750 million for expanding voice and advanced data communications services.<sup>340</sup> Like the other ILECs, Qwest expects its data services business to contribute a larger portion of revenues in the future – its DSL revenues grew over 150% in 2000, primarily due to

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<sup>336</sup> BellSouth Corporation Report for the Fiscal Year Ended December 31, 1999 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

<http://www.sec.gov/Archives/edgar/data/92088/0000912057-00-009519.txt>

<sup>337</sup> BellSouth Corporation Report for the Fiscal Year Ended December 31, 2000 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

<http://www.sec.gov/Archives/edgar/data/732713/000091205701007097/0000912057-01-007097.txt>

<sup>338</sup> Communications Today, January 4, 2002, Volume 8, No. 3.

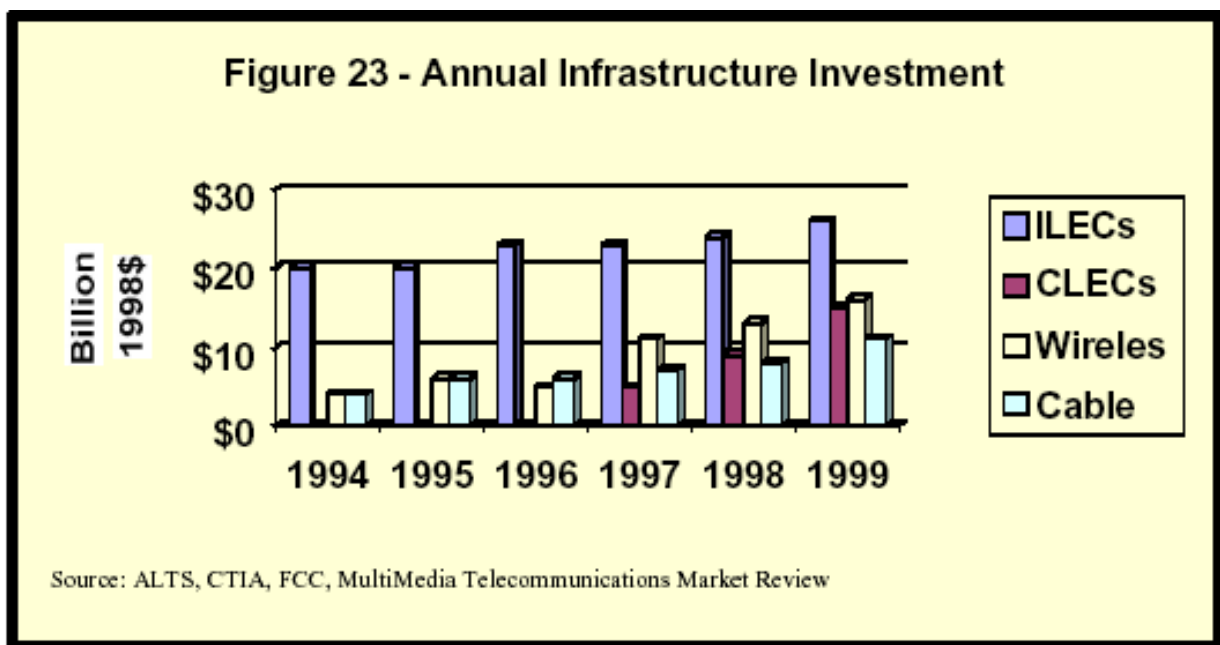
<sup>339</sup> Qwest, Annual Report, 2000, Page 1. [http://www.qwest.com/Qwest\\_2000\\_AR/ar2000.pdf](http://www.qwest.com/Qwest_2000_AR/ar2000.pdf)

<sup>340</sup> Id., Pages 3-4. [http://www.qwest.com/Qwest\\_2000\\_AR/ar2000.pdf](http://www.qwest.com/Qwest_2000_AR/ar2000.pdf)

an increase in customers.<sup>341</sup> In 1997 and 1998, Qwest introduced its Megabit(TM) Services, a high-speed Internet access service in select markets, and in 2000, was launched this service in 58 additional central offices covering 33 metropolitan service areas.<sup>342</sup>

These statements clearly illustrate that the ILECs have undertaken significant capital expenditures during the past decade with the intention of modifying the architecture of their loop plant so that they could provide data and video services (Figure 3 summarizes the extent of ILEC and non-ILEC investment from 1994-1999). Moreover, ILECs are expected to spend more than \$8 billion dollars over the next four years just to increase provision of DSL service.<sup>343</sup>

**Figure 3 – Annual Infrastructure Investment by ILECS, CLECS, Cable, and Wireless**



Source: FCC Report on Deployment of Advanced Telecommunications Capability: Second Report August 2000, Figure 23, Page 74.

<sup>341</sup> Qwest Corporation Report for the Fiscal Year Ended December 31, 2000 -- United States Securities and Exchange Commission, Form 10-k, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.  
<http://www.sec.gov/Archives/edgar/data/68622/000095013401003065/0000950134-01-003065.txt>

<sup>342</sup> Id.

<sup>343</sup> Stanford C. Bernstein & Co. and McKinsey & Co., Inc., *Broadband*, 2000, Page 72.

## 8.7 ILECs will Continue to Seek New Technologies for Deploying Advanced Telecommunication Services

Although we have not done an exhaustive study on telecommunications technology, there is no question that technological advancements will continue to drive ILEC (and CLEC, cable, and other providers) decisions regarding provision of advanced data services. For some time, the leaders of telecommunication companies have had a vision of providing data, voice, and video over one platform, and this will continue since the technology has finally arrived that permits this type of convergence. Packet network conversion is one such technology that is being implemented to facilitate the provision of advanced services. The case of Sprint is illustrative, but Qwest also plans to deploy packet-switched technology in several of the largest metropolitan areas it serves.

Sprint plans to convert its local exchange network from the existing digital circuit-switched configuration to a packet-switched network beginning January 2003. It awarded Nortel Networks a \$1.1 billion contract to deploy phase I of the conversion. Phase I will end in July 2006, and the company expects full conversion by 2009. During phase I, Nortel will convert 3.6 million of 8.3 million access lines in Sprint's local exchange operations in 18 states. Packet switching on the local network will enable multiple telephone calls or Internet connections to share the same telephone line.

Sprint, which has been working on plans for this conversion since 1997, said it would be the first incumbent local exchange carrier in the U.S. to convert its entire local operation to a packet-switched network. This will enable it to expand its ability to offer advanced data services. In the long-run, Sprint contends, the new packet-switched technology will also reduce capital costs by reducing the need for maintenance and upkeep of the old network.<sup>344</sup>

"As we migrate toward the next generation packet network Sprint will be able to offer new, advanced solutions for businesses at a much more rapid pace," said Phyllis Robertson, president of Sprint LTD's Business Markets Group.<sup>345</sup>

"Today many subscribers are frustrated that because they are served behind a non-compatible network device such as a Digital Loop Carrier (DLC), they can't get high-speed data services. The deployment of this technology will circumvent these bottlenecks. Packet switching will also

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<sup>344</sup> Sprint to Become First Incumbent Local Phone Company to Convert its Network Infrastructure to Next-Generation Packet Network, Telecommunications Reports, November 12, 2001. <http://www.tr.com/online/tr/2001/tr111201/Tr111201-21.htm#TopOfPage>

<sup>345</sup> Sprint Press Release, November 5, 2001

enable Sprint to provide customers with more reliable and robust data services." said Jim Hansen, senior vice president, Sprint LTD Network.<sup>346</sup>

Networks thus continue to evolve so that high-speed data and video services can be provided. However, at the same time, the FCC has done nothing to implement 254(k) cost allocation requirements of joint and common plant. Consequently, voice services will subsidize these new services under the Commission's CALLS plan as it is currently being implemented.

## 9 Concluding Remarks and Recommendations

It is appropriate to use the forward-looking costs incorporated into state approved TELRIC rates and the FCC Synthesis Model to determine if an SLC Cap increase is warranted. The cost data show that the SLC should not go above \$5. However, at the same time, we do not specifically seek deaveraging below \$5 by asking in this proceeding for zones with costs below \$5 to be immediately priced at cost. In this proceeding, the FCC should only stop the increases in the SLC, and not change the CALLS order in any other way.

The cap should not exceed \$5 since with this cap the ILECs are still collecting too much revenue – NASUCA estimates that customers with costs at or below \$5 are paying \$1,113 million more than cost, while customers with costs over \$5 are paying \$472 million less than cost. In any event, maintaining the SLC cap at \$5 would not cause any company to have a rate of return below the FCC's authorized return on the order of 11.25%. As shown in Appendix A, every Company, other than New York Telephone, Cincinnati Bell (Kentucky), and Southwestern Bell (Texas), is currently earning a return on interstate service that exceeds 11.25%.

Furthermore, we recommend that the Commission undertake a proceeding in which it identifies the shared and joint costs that should be allocated to non-supported services. This filing demonstrates that the Commission's cost allocation procedures do not provide protection to users of supported services, in violation of Section 254(k) of the Act.

The Commission can no longer avoid the allocation issue of Section 254(k) because this docket deals with what costs should be collected in the bundled exchange rate. Our submission shows that the network is designed to meet the more demanding requirements of data and video, and that the CALLS plan to collect all of these costs from basic exchange service is illegal because it requires supported services to subsidize non-supported services.

Finally, Section 254(k) directs the Commission to prevent supported services from subsidizing non-supported ones. The Commission's current pricing rules and cost

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<sup>346</sup> Id.

allocation procedures require monopoly supported services to subsidize non-supported and competitive interexchange toll usage since traffic-sensitive costs are recovered through the Subscriber Line Charge. NASUCA strongly urges the Commission to abide by the clear intent of the Act, and end implicit subsidies.

## Appendix A

### Non-Rural Price-Cap Study Areas and Year 2000 Interstate Rate of Return

State	Study Area Code	Study Area Name	Interstate Rate of Return – 2000
AL	250281	Contel of the South DbA GTE South	16.95
AL	250293	GTE And Contel of Alabama	21.53
AL	255181	South Central Bell-AL	19.07
AR	405211	Southwestern Bell-Arkansas	14.84
AZ	455101	Mountain Bell-Arizona	18.44
CA	542302	Contel of California-California	29.90
CA	542319	GTE of California	26.56
CA	545170	Pacific Bell	19.13
CO	465102	Mountain Bell-Colorado	15.94
CT	135200	Southern New England Telephone	18.77
DC	575020	C And P Telephone Company of DC	21.37
DE	565010	Diamond State Tel Company	15.14
FL	210328	GTE Florida, Inc	22.32
FL	215191	Southern Bell-FL	24.61
GA	225192	Southern Bell-GA	19.04
HI	623100	GTE Hawaiian Telephone Company, Inc.	17.76
IA	355141	Northwestern Bell-IA	24.23
ID	475103	Mountain Bell-Idaho	22.55
IL	341036	Contel of Illinois Inc DbA GTE - Illinois	44.29
IL	341015	GTE of Illinois	24.40
IL	345070	Illinois Bell Telephone Company	29.00
IN	320779	Contel of Indiana Inc DbA GTE - Indiana	49.38
IN	320772	GTE of Indiana	34.15
IN	325080	Indiana Bell Telephone Company	30.32
KS	415214	Southwestern Bell-Kansas	19.57
KY	265061	Cincinnati Bell-Kentucky	11.00
KY	260407	GTE South Inc - Kentucky	27.14
KY	265182	South Central Bell-Kentucky	18.00
LA	275183	South Central Bell-LA	23.26
MA	115112	New England Tel-MA	11.78
MD	185030	C And P Tel Company of Maryland	14.59
ME	105111	New England Telephone-Maine	20.14
MI	310695	GTE North Inc-MI	16.89
MI	315090	Michigan Bell Telephone Company	34.29
MN	365142	Northwestern Bell-Minnesota	23.45
MO	421922	Contel Missouri DbA GTE Missouri	18.82
MO	421186	GTE North Inc – Missouri	17.99
MO	425213	Southwestern Bell-Missouri	22.55
MS	285184	South Central Bell-Mississippi	16.73
MT	485104	Mountain Bell-Montana	19.47



State	Study Area Code	Study Area Name	Interstate Rate of Return – 2000
NC	230509	Contel North Carolina DbA GTE N Carolina	17.83
NC	230479	GTE South Inc - North Carolina	25.09
NC	235193	Southern Bell-NC	20.43
ND	385144	Northwestern Bell-North Dakota	33.55
NE	371568	Lincoln Telephone And Telegraph Company	12.00
NE	375143	Northwestern Bell-Nebraska	18.67
NH	125113	New England Tel-NH	19.15
NJ	165120	New Jersey Bell	18.63
NM	495105	Mountain Bell-New Mexico	19.64
NV	552348	Central Telephone Company – Nevada	18.67
NV	555173	Nevada Bell	20.52
NY	155130	New York Telephone	5.18
NY	150121	Rochester Telephone Corporation	24.00
OH	305062	Cincinnati Bell-Ohio	36.00
OH	300615	GTE North Inc-Ohio	21.55
OH	305150	Ohio Bell Tel Company	29.97
OK	435215	Southwestern Bell-Oklahoma	24.44
OR	532416	GTE of The Northwest	32.18
OR	535163	Pacific Northwest Bell-Oregon	21.94
PA	175000	Bell of Pennsylvania	18.98
PA	170169	GTE North Inc-PA And Contel	22.55
RI	585114	New England Tel-RI	19.55
SC	240479	GTE South Inc - South Carolina	31.35
SC	245194	Southern Bell-SC	17.94
SD	395145	Northwestern Bell-South Dakota	21.13
TN	295185	South Central Bell-TN	18.85
TX	442154	Contel of Texas Inc DbA GTE Texas	12.20
TX	442080	GTE Southwest Inc - Texas	21.43
TX	445216	Southwestern Bell-Texas	10.58
UT	505107	Mountain Bell-Utah	18.87
VA	195040	C And P Tel Company of VA	19.41
VA	190233	Contel Of Virginia Inc DbA GTE Virginia	41.92
VT	145115	New England Tel-VT	14.74
WA	522416	GTE Northwest Inc - Washington	33.13
WA	525161	Pacific Northwest Bell-Washington	22.08
WA	522449	GTE NW-WA (Contel)	40.03
WI	330886	GTE North Inc-WI	17.71
WI	335220	Wisconsin Bell	27.33
WV	205050	C And P Tel Company of West Virginia	22.66
WY	515108	Mountain Bell-Wyoming	22.67

Source: Armis 43-01, Row 1920 for the interstate rate of return

## APPENDIX C

## Comparison of UNE Costs to ILEC Estimates of the Costs of Interstate Loop and Port Costs

A	B	C	D	E	F	G	H	I	J
State [Note 1]	Company [Note 2]	CMT [Note 3]	Number of Lines [Note 4]	Average Per-line Interstate UNE Cost	RBOC Interstate Loop + Port Cost Estimates [Note 5]	Monthly Interstate Overstatement [ F - E ]	Overcollection Per-line Per-Month at \$5 [Min (\$5 or C) - E]	Overcollection Per-State Per-Month at \$5 [H * D]	Overcollection Per-line Per-Month at \$6 [Min (\$6 or C) - E]
Indiana	AIT	\$5.53	2,280,482	\$3.54	\$6.14	\$2.60	\$1.46	\$3,340,335	\$1.99
Michigan	AIT	\$5.32	5,391,358	\$3.45	\$6.85	\$3.40	\$1.55	\$8,382,797	\$1.87
Ohio	AIT	\$5.37	4,132,649	\$3.04	\$6.01	\$2.97	\$1.96	\$8,120,220	\$2.33
Alabama	BS	\$7.84	1,958,846	\$5.79	\$7.49	\$1.70	\$0.00	\$0	\$0.21
Florida	BS	\$7.84	6,683,940	\$4.73	\$6.05	\$1.32	\$0.27	\$1,827,269	\$1.27
Georgia	BS	\$7.84	4,337,216	\$5.10	\$6.40	\$1.30	\$0.00	\$0	\$0.90
Kentucky	BS	\$7.84	1,240,313	\$5.08	\$8.21	\$3.13	\$0.00	\$0	\$0.92
Louisiana	BS	\$7.84	2,395,670	\$5.63	\$7.61	\$1.98	\$0.00	\$0	\$0.37
Mississippi	BS	\$7.84	2,691,468	\$4.98	\$9.78	\$4.80	\$0.02	\$41,892	\$1.02
South Carolina	BS	\$7.84	1,492,788	\$5.37	\$7.48	\$2.11	\$0.00	\$0	\$0.63
Tennessee	BS	\$7.84	2,743,818	\$4.74	\$6.81	\$2.07	\$0.26	\$717,461	\$1.26
Arkansas	SBC	\$5.67	1,018,030	\$4.63	\$7.33	\$2.70	\$0.37	\$379,477	\$1.04
California	SBC	\$4.41	17,123,290	\$4.04	\$5.97	\$1.93	\$0.37	\$6,344,499	\$0.37
Connecticut	SBC	\$5.71	2,402,153	\$4.55	\$5.71	\$1.16	\$0.45	\$1,074,211	\$1.16
Kansas	SBC	\$5.27	1,429,945	\$4.49	\$8.39	\$3.90	\$0.51	\$724,041	\$0.78
Missouri	SBC	\$5.10	1,325,864	\$6.45	\$6.66	\$0.21	\$0.00	\$0	\$0.00
Nevada	SBC	\$6.05	338,418	\$5.28	\$7.15	\$1.87	\$0.00	\$0	\$0.72
Oklahoma	SBC	\$4.71	1,705,544	\$5.18	\$7.86	\$2.68	\$0.00	\$0	\$0.00
Texas	SBC	\$5.37	10,165,710	\$4.65	\$7.86	\$3.21	\$0.35	\$3,552,151	\$0.72
Idaho-South	USW	\$8.48	496,122	\$7.36	\$8.25	\$0.89	\$0.00	\$0	\$0.00
Iowa	USW	\$7.08	1,083,752	\$5.96	\$6.77	\$0.81	\$0.00	\$0	\$0.04
Nebraska	USW	\$7.29	509,689	\$5.33	\$6.93	\$1.60	\$0.00	\$0	\$0.67
New Mexico	USW	\$8.24	811,451	\$6.19	\$7.74	\$1.55	\$0.00	\$0	\$0.00
North Dakota	USW	\$8.45	236,467	\$5.64	\$7.98	\$2.34	\$0.00	\$0	\$0.36
Oregon	USW	\$7.60	1,380,903	\$4.76	\$7.17	\$2.41	\$0.24	\$328,465	\$1.24
South Dakota	USW	\$9.00	276,608	\$6.44	\$8.59	\$2.15	\$0.00	\$0	\$0.00
Utah	USW	\$5.45	1,082,091	\$4.99	\$5.04	\$0.05	\$0.01	\$13,195	\$0.46
Washington	USW	\$5.64	2,487,443	\$4.96	\$5.26	\$0.30	\$0.04	\$106,365	\$0.68
D.C.	VZ	\$3.81	727,822	\$3.75	\$6.05	\$2.30	\$0.06	\$46,576	\$0.06
Delaware	VZ	\$6.41	582,725	\$4.29	\$6.01	\$1.72	\$0.71	\$415,273	\$1.71
Maine	VZ	\$6.41	702,726	\$5.94	\$6.24	\$0.30	\$0.00	\$0	\$0.06
Maryland	VZ	\$5.68	3,664,355	\$4.74	\$7.08	\$2.34	\$0.26	\$946,385	\$0.94
Massachusetts	VZ	\$6.41	4,404,502	\$4.94	\$6.24	\$1.30	\$0.06	\$251,057	\$1.06
New Hampshire	VZ	\$6.41	828,170	\$5.87	\$6.24	\$0.37	\$0.00	\$0	\$0.13
New Jersey	VZ	\$6.21	6,424,617	\$3.32	\$7.33	\$4.01	\$1.68	\$10,781,272	\$2.68
New York	VZ	\$6.41	11,408,062	\$4.70	\$6.24	\$1.54	\$0.30	\$3,421,392	\$1.30
Pennsylvania	VZ	\$6.00	6,421,421	\$4.61	\$8.45	\$3.84	\$0.39	\$2,511,072	\$1.39
Rhode Island	VZ	\$6.41	705,885	\$5.03	\$6.24	\$1.21	\$0.00	\$0	\$0.97
Vermont	VZ	\$6.41	354,368	\$4.16	\$6.24	\$2.08	\$0.84	\$299,326	\$1.84
Virginia	VZ	\$6.53	3,587,418	\$4.45	\$7.55	\$3.09	\$0.55	\$1,958,030	\$1.55
West Virginia	VZ	\$8.21	842,646	\$7.18	\$12.39	\$5.21	\$0.00	\$0	\$0.00
					Weighted Average		Weighted Average		
					\$4.56		\$2.32		
							Percent of True Costs		
							51%		
					SLC Cap	\$5.00	\$6.00	\$6.50	
					Monthly Totals	\$55,582,763	\$126,616,011	\$151,207,262	
					Yearly Totals	\$666,993,152	\$1,519,392,137	\$1,814,487,145	
					Number of State Under the Cap	23	36	39	
					Percentage of States Under the Cap	55%	86%	93%	

**Appendix C—Notes**

- Note 1: The Study was limited to the continental United States. Also dropped were states with (a) more than 4 UNE zones or (b) UNE rates below wire center level.
- Note 2: SBC Communications "AIT" or "SBC"; Verizon - "VZ"; Bellsouth - "BS"; Qwest - "QW".
- Note 3: CMT Data derived from: SBC Attachment 5; Verizon Attachment B; "Trends in Telephone Service" Table 1.3 August 2001 (For Bellsouth), and; Qwest from Qwest Attachment 1.
- Note 4: Number of lines was from the Armis reports.
- Note 5: Loop & Port cost estimates are derived from: SBC Study, Attachment 5; Verizon Study Attachment D; Bell South Study *Filename Summary1.xls*, and; Qwest Study Attachment 1.